EPA Reg. No. 83416-1
Vol. 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

March 19, 2015

Robert Rosewasser
Agent for Quest Products, LLC
11712 230th Street
Linwood, KS 66052

Subject: Storage Stability and Corrosion Characteristics Data to Support Registration
Product Name: Reliant Systemic Fungicide
EPA Registration No.: 83416-1
EPA Receipt Date: September 22, 2014
OPP Decision No.: 496437

Dear Mr. Rosewasser:

On September 22, 2014, the EPA received your submission of Storage Stability and Corrosion Characteristic data for Reliant Systemic Fungicide (EPA Reg No. 83416-1). In a memorandum dated December 29, 2014 (see enclosure), the EPA rated the submitted storage stability and corrosion characteristics data (MRID No. 494718-01) as acceptable.

If you have any questions, please contact Gina Burnett of my team by phone at (703) 605-0513 or via email at burnett.gina@epa.gov.

Sincerely,

Andrew Bryceland, Team Leader
Biochemical Pesticides Branch
Biopesticides and Pollution
Prevention Division (7511P)
Office of Pesticide Programs

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 2046

Office of Chemical Safety and Pollution Prevention

ACCELERATED REVIEW FOR BIOCHEMICAL BIOPESTICIDE PRODUCT CHEMISTRY STORAGE STABILITY AND CORROSION CHARACTERISTICS (OCSPP 830.6317 and 830.6320)
12/29/2014

EPA Reg. or File Symbol No.	83416-1
Chemical Class	**Biochemical**
PC Code	076416
CAS No.	13977-65-6; 13492-26-7
DP No	423649
Decision No.	496437
Submission No.	958183
MRID No.	49471801

REVIEWER	Colin G. Walsh, M.S., Biologist
REGULATORY ACTION LEADER	Gina Burnett
REGISTRANT	Quest Products, LLC
REGISTRANT'S REPRESENTATIVE	N/A

Table 1. Storage Stability of Reliant® Systemic Fungicide (Mono- and Di-Potassium Salts of Phosphorous Acid at 45.8%)

Sampling Interval	Mean% a.i.
Initial	45.81
1 Month	45.95
3 Months	46.21
6 Months	45.74
9 Months	45.55
12 Months	44.81

Table 2. Corrosion Characteristics of Reliant® Systemic Fungicide (Mono- and Di-Potassium Salts of Phosphorous Acid at 45.8%)

Sampling Interval	Visual Observations
Initial	Sample was a single phase, blue liquid stored in its original container and closure. Temperature during the storage period ranged from 60-78°F.
1 Month	No change in sample or container.
3 Months	No change in sample or container.
6 Months	No change in sample or container.
9 Months	No change in sample or container.
12 Months	No change in sample. Container has some discoloration above the sample line.

Decision #: 496437
DP #: (423649)
NON PRIA
Parent DP #:
Submission #: 958183
E-Sub #:

DATA PACKAGE BEAN SHEET

Date: 03-Nov-2014

* * * Registration Information * * *

Registration: 83416-1 - RELIANT SYSTEMIC FUNGICIDE

Company: 83416 - QUEST PRODUCTS L.L.C.

Risk Manager: RM 91 - Andrew Bryceland - (703) 308-6928 Room# PY1 S-8873

Risk Manager Reviewer: Gina Burnett GBURNETT

Sent Date: 23-Sep-2014 PRIA Due Date: 10-Jan-2015 Edited Due Date:

Type of Registration: Product Registration - Section 3

Action Desc: (570) CONDITIONAL REGISTRATION FOLLOW-UP;DATA REQUIRED;REQUIRES RD REVIE

Ingredients: 076416, Mono- and di- potassium salts of phosphorous acid(45.8%)

* * * Data Package Information * * *

Expedite: ○ Yes ● No Date Sent: 03-Nov-2014 Due Back:

DP Ingredient: 076416, Mono- and di- potassium salts of phosphorous acid

DP Title:

CSF Included: ● Yes ○ No Label Included: ● Yes ○ No Parent DP #:

Assigned To	Date In	Date Out	
Organization: BPPD / BPB			Last Possible Science Due Date: 01-Nov-2014
Team Name: RM 91			Science Due Date:
Reviewer Name: ~~Jones, Russell~~ Colin			Sub Data Package Due Date:
Contractor Name:			

* * * Studies Sent for Review * * *

Printed on Page 2

* * * Additional Data Package for this Decision * * *

No Additional Data Packages

* * * Data Package Instructions * * *

BPB Reviewer,

Please review the enclosed Storage Stability and Corrosion Characteristics study. A CSF and product label are also included for your reference.

Review due date: 1/7/2015
Non-PRIA

DP#: (423649) *** Studies Sent for Review *** Decision#: (496437)

MRID	MRID Status	Citation Reference	Guideline	86-5 Status
49471801		Howarth, J. (2014) Reliant Systemic Fungicide: Mono- and Di- Potassium Salts of Phosphorus Acid: Physical and Chemcial Properties (Group B). Project Number: RELIANT/13/02. Unpublished study prepared by Enviro Tech Chemical Services, Inc. 9p.	830.6317/Storage stability	Pass (20-Oct-2014)
49471801		Howarth, J. (2014) Reliant Systemic Fungicide: Mono- and Di- Potassium Salts of Phosphorus Acid: Physical and Chemcial Properties (Group B). Project Number: RELIANT/13/02. Unpublished study prepared by Enviro Tech Chemical Services, Inc. 9p.	830.6320/Corrosion characteristics	Pass (20-Oct-2014)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

September 24, 2014

RR CONSULTING SERVICES, INC.
QUEST PRODUCTS L.L.C.
273 ALTHEA AVENUE
MORRISVILLE, PA 19067

Report of Analysis for Compliance with PR Notice 11-03

Thank you for your submittal of 22-SEP-14. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 11-03. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

GLNC

Product ingredient source information may be entitled to confidential treatment

Quest
Products Corp.

49471800

11712 230th St.
Linwood, KS 66052

September 17, 2014

Document Processing Desk
Office of Pesticide Programs (7511P)
Biochemical Pesticides Branch
US Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

RE: RELIANT SYSTEMIC FUNGICIDE, 83416-1
Submission of Storage/Stability Report

Quest Products, LLC, 11712 230th Street, Linwood, KS 66052 is submitting this 1-year Storage Stability and Corrosion Characteristics Study to satisfy the requirements for OPPTS 830.6317 and 830.6320.

This report is submitted to satisfy the requirements of registration for EPA Reg. No. 83416-1.

Please find enclosed:

- 3 copies of the Storage Stability Report;
- Copy of 8570-1 form and;
- Copy of Transmittal Document

If you have any questions or need any additional information, please feel free to contact me at (215) 715-6419 or mailto:rosenwasser@verizon.net.

Sincerely,

Robert Rosenwasser
Agent for Quest Products, LLC

TRANSMITTAL DOCUMENT

Submitter

Quest Products LLC
11712 230th St.
Linwood, KS 66052

Regulatory action in support of which this package is submitted.

Application for Registration of Reliant Systemic Fungicide a manufacturing use product produced as an integrated system. EPA File Symbol 83416-1

Transmittal Date

August 29, 2014

Submitted Studies

	MRID	
----		Administrative Materials
Document 1:	49471801	Howarth, J. August 29, 2014. Reliant Systemic Fungicide. Physical & Chemical Properties (Group B). Enviro Tech Chemical Services. Report No. Group B SSC Reliant 13-02. 9 pages

Company Official: Robert Rosenwasser

Company Contact: Robert Rosenwasser, Quest Products LLC

Phone Number: 215-715-6419
Email: rrosenwasser@verizon.net

83416-1

Memorandum

Date: 10 / 17 / 14

To: 91, Regulatory Manager

From: Information Services Branch, ITRMD

Your receipt of this data submission is not an indication that MRIDs for the enclosed studies have been posted to OPPIN.

We expect that it will be approximately 5 days from the above date before the study-level data is available in OPPIN.

If you have any questions about this process, please contact Teresa Downs (305-5363).

This is a:
- ☒ fully accepted submission
- ☐ partially accepted submission
- ☐ rejected submission

Quest
Products Corp.

49471800

11712 230th St.
Linwood, KS 66052

September 17, 2014

Document Processing Desk
Office of Pesticide Programs (7511P)
Biochemical Pesticides Branch
US Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

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- 3 copies of the Storage Stability Report;
- Copy of 8570-1 form and;
- Copy of Transmittal Document

If you have any questions or need any additional information, please feel free to contact me at (215) 715-6419 or mailto:rrosenwasser@verizon.net.

Sincerely,

Robert Rosenwasser
Agent for Quest Products, LLC

Please read instructions on reverse before completing form. Form Approved. ...8 No. 2070-0060. Approval expires 2-28-95

United States
Environmental Protection Agency
Washington, DC 20460

- [ ] Registration
- [ ] Amendment
- [x] Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number	2. EPA Product Manager	3. Proposed Classification
83416-1	Linda Hollis	[x] None [ ] Restricted
4. Company/Product (Name)	**PM#**	
RELIANT SYSTEMIC FUNGICIDE	Branch Chief	

5. Name and Address of Applicant *(Include ZIP Code)*

Quest Products, LLC
11712 230th Street
Linwood, KS 66052

[ ] *Check if this is a new address*

6. Expedited Reveiw. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. _____

Product Name _____

Section - II

- [ ] Amendment - Explain below.
- [ ] Resubmission in response to Agency letter dated _____
- [ ] Notification - Explain below.
- [ ] Final printed labels in repsonse to Agency letter dated _____
- [ ] "Me Too" Application.
- [x] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of 1 year Storage/Stability study.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes [ ] No	[ ] Yes [ ] No	[ ] Yes [ ] No	[ ] Metal [ ] Plastic [ ] Glass [ ] Paper [ ] Other (Specify)
* ***Certification must be submitted***	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[ ] Label [ ] Container		[ ]

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [ ] Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Robert Rosenwasser	Agent, Quest Products, LLC	215-715-6419

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowlingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received
(Stamped)

2. Signature	3. Title
	Agent, Quest Products, LLC
4. Typed Name	**5. Date**
Robert Rosenwasser	September 17, 2014

Bryceland, Andrew

From: rrosenwasser@verizon.net
Sent: Monday, July 07, 2014 2:00 PM
To: Hollis, Linda; Bryceland, Andrew
Cc: Cole, Leonard S.
Subject: Re: Reliant (EPA Reg No 83416-1) -response to your questions

Linda:
I appreciate your email. I was unaware the I could use your email for California. If we should need your help with CA, I will reach out to you.
Thanks!
Robert Rosenwasser

From: Hollis, Linda
Sent: Monday, July 07, 2014 1:29 PM
To: rrosenwasser@verizon.net ; Bryceland, Andrew
Cc: Cole, Leonard S.
Subject: RE: Reliant (EPA Reg No 83416-1) -response to your questions

Dear Mr. Rosenwasser:

An Agency email serves as an official record. A copy of all correspondence is placed in the company's file jacket. As such, the email below was also placed in your file. I believe that the language below in the email from A. Bryceland to you should be sufficient for California in that it explains that your product, which was originally registered as a repack, is no longer considered as a repackaged product, because, by way of your amendment application dated 9/16/13 (that was approved), you have supplied the information required in support of using an unregistered source of active ingredient such that you are no longer repacking the product but in fact, making the product yourself, thus removing the product from "repack" status.

Feel free to provide to California my contact information should further explanation of the status of your product be required.

Regards,

Linda A. Hollis, Chief
Biochemical Pesticides Branch
Biopesticides and Pollution Prevention Division
703 308-8733

From: rrosenwasser@verizon.net [mailto:rrosenwasser@verizon.net]
Sent: Monday, July 07, 2014 1:00 PM
To: Bryceland, Andrew
Cc: Hollis, Linda; Cole, Leonard S.
Subject: Re: Reliant (EPA Reg No 83416-1) -response to your questions
Importance: High

Andrew:
Can you please prepare and send me the letter regarding the upgrade of Reliant Fungicide, EPA Reg. No. 83416-1 from a 100% Repack to a full primary? The letter is requested by the State of California to pursue an amendment there. The email below does state the conclusion however a formal letter in our registration jacket would be best.
Please let me know if you need any additional information.
Thanks!
Robert

From: Bryceland, Andrew
Sent: Friday, June 13, 2014 9:35 AM
To: rrosenwasser@verizon.net
Cc: Hollis, Linda ; Cole, Leonard S.
Subject: RE: Reliant (EPA Reg No 83416-1) -response to your questions

Dear Mr. Rosenwasser,

Linda and I met regarding your questions about the product Reliant Systemic Fungicide (EPA Reg No. 83416-1). Our response is as follows:

1) You application, dated 9/16/13, to now use an unregistered source of active ingredient to manufacture your product was approved (Agency letter dated 4/4/14) as a formulation amendment. Because of this change in source, you product is no longer classified as 100% re-pack.

2) With regard to your application for notification dated 4/4/14, the changes that you are requesting do not fall under the scope of PR Notice 98-10. Some of the changes that you are making to the directions for use are not permitted: adding the new hydroponic application method; changing use rates; directions for applying with conventional pesticides; adding chemigation. Therefore, the currently pending notification application is being treated as a fast track amendment. This application was received by the Agency on April 8, 2014. Fast track amendments carry a turnaround time of 90 days and therefore the Agency will respond to this application by July 7, 2014. The Regulatory Action Leader that has been assigned to this action is Mr. Leonard Cole (cole.leonard@epa.gov; (703)305-5412).

Regards,
Andrew Bryceland
Team Leader
Biochemical Pesticides Branch
Biopesticides and Pollution Prevention Division
USEPA

From: rrosenwasser@verizon.net [mailto:rrosenwasser@verizon.net]
Sent: Tuesday, June 10, 2014 12:31 PM
To: Bryceland, Andrew
Subject: Reliant
Importance: High

Andrew:

Do you have an update on the label notification? Did you have a chance to speak with Linda regarding the primary upgrade letter?
Please let me know.
Thanks!
Robert

Bryceland, Andrew

From: Bryceland, Andrew
Sent: Friday, June 13, 2014 9:35 AM
To: 'rrosenwasser@verizon.net'
Cc: Linda Hollis (hollis.linda@epa.gov); Cole, Leonard S.
Subject: RE: Reliant (EPA Reg No 83416-1) -response to your questions

Dear Mr. Rosenwasser,

Linda and I met regarding your questions about the product Reliant Systemic Fungicide (EPA Reg No. 83416-1). Our response is as follows:

1) You application, dated 9/16/13, to now use an unregistered source of active ingredient to manufacture your product was approved (Agency letter dated 4/4/14) as a formulation amendment. Because of this change in source, you product is no longer classified as 100% re-pack.

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Regards,
Andrew Bryceland
Team Leader
Biochemical Pesticides Branch
Biopesticides and Pollution Prevention Division
USEPA

From: rrosenwasser@verizon.net [mailto:rrosenwasser@verizon.net]
Sent: Tuesday, June 10, 2014 12:31 PM
To: Bryceland, Andrew
Subject: Reliant
Importance: High

Andrew:
Do you have an update on the label notification? Did you have a chance to speak with Linda regarding the primary upgrade letter?
Please let me know.
Thanks!
Robert

Bryceland, Andrew

From: Hollis, Linda
Sent: Wednesday, June 11, 2014 2:12 PM
To: Bryceland, Andrew
Subject: FW: Reliant Systemic Fungicide EPA.No 83416-1 submission

From: Hollis, Linda
Sent: Tuesday, March 18, 2014 12:28 PM
To: Leahy, John
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert; Burnett, Gina
Subject: RE: Reliant Systemic Fungicide EPA.No 83416-1 submission

Clarity from OGC.

The requested action, amending the repack by adding an unregistered source, CAN be completed as an amendment vs a new product application as the formulations are virtually identical. (See Erin's interpretation below). The new formulation uses a source of the active ingredient that is more pure than the existing source product but the nominal concentrations remain the same.

Next Steps-

Looking at the resubmission. Still two outstanding questions (minor). Currently verifying whether the data is buried within an MRID (as stated by the registrant) or is in fact missing. Will have those answers by the end of the day.

By the end of today, Linda will communicate to Stringfellow the following:
(1) application can be handled as a amendment;
(2) there are some deficiencies still (minor) **OR** there are no deficiencies;
(3) BPB will be able to complete this action before the 5/19/14 PRIA due date.

From Erin:
-----Original Message-----
From: Koch, Erin
Sent: Tuesday, March 18, 2014 10:58 AM
To: Hollis, Linda
Cc: Kaczmarek, Chris
Subject: RE: Obtaining an amendment for a product that was registered as a repacks

[redacted]

Privileged attorney-client communication

[redacted]

Erin S. Koch
Pesticides and Toxic Substances Law Office Office of General Counsel US EPA
202-564-1718

From: Leahy, John
Sent: Tuesday, March 18, 2014 10:50 AM
To: Hollis, Linda
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: Re: Reliant Systemic Fungicide EPA.No 83416-1 submission

Okay, thanks . I'll stop by after staff meetings and you can fill me in on Erin's input.

From: Hollis, Linda
Sent: Tuesday, March 18, 2014 10:45:00 AM
To: Leahy, John
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: Re: Reliant Systemic Fungicide EPA.No 83416-1 submission

John-

I responded to his email on yesterday and indicated that I would provide him with feedback. I believe that you were copied on the email. I am working with OGC to get clarity on the language in the document. Erin has stated that she would give me something in writing by the end of the day. I have also reached out to AD and RD. Will keep you posted. I can get you talking points later on during the day if needed but it may not be necessary judging on my conversation with Erin.
Will keep you posted.

From: Leahy, John
Sent: Tuesday, March 18, 2014 9:30:34 AM
To: Hollis, Linda
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: FW: Reliant Systemic Fungicide EPA.No 83416-1 submission

Hi Linda, Andy, and Leonard,

Mr. Stringfellow left me a voice message yesterday afternoon requesting "an intervention". He mentioned that he would follow up with an email, which I believe is the one below.

I'd like for us to get back to him today—either by responding to his email or calling him—with general responses to his major points below.

Could you send me some brief talking points for a call, or a draft email response if you think that's the best path? If calling, it might be good to have you, Linda, on the call too, to make sure we are all on the same page and to reinforce the message you all sent last Friday. Let me know what you think.

Thanks,

John

From: Bill Stringfellow Quest [mailto:bill@questproducts.us]
Sent: Monday, March 17, 2014 4:36 PM
To: Hollis, Linda; Leahy, John
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: Reliant Systemic Fungicide EPA.No 83416-1 submission
Importance: High

Ms. Hollis:

Thank you for discussing over the telephone last Friday our application to amend EPA Reg. No. 83416-1. As outlined below, we request BPPD to approve our pending application to amend our end use ("EP") product that we intend to produce using an integrated system. We believe all of the necessary reviews have been completed by BPPD. We respectfully submit that submitting a new application at this juncture to register a manufacturing use product ("MUP") for incorporation into our EP is neither necessary, cost-effective or consistent with our business plans. As you are aware, we are under significant continuing pressure from the end user community to supply our Reliant Systemic Fungicide product this spring.

Quest Products explained to BPPD in writing from the outset our registration intentions – specifically, to amend our existing registration to permit the production of our EP from an integrated process, as expressly permitted by 40 C.F.R. § 158.325(b). Our original submission cover letter dated Sept.11, 2013 clearly set forth how and who assisted in its development from BPPD. We requested that BPPD expedite and complete its review of the chemistry section of our application by March 15, 2014 because we are without source of supply, and because we are facing demands from growers for a product that will aid in preventing the loss of trees from disease this spring.

BPPD has completed the front end primary screen of our application package. It completed its technical review, chemistry review and data matrix review as of February 4, 2014, subject to our making some minor additions and correction, which we have addressed or are in process of sending to the reviewer. In summary, BPPD has completed all of the elements for a PRIA code B-681, and we request that, subject to our submitting the last piece of information, BPPD approve our registration. We have completed all of the product chemistry requirements to enable BPPD to approve an EPA produced from an integrated system. 40 C.F.R. § 158.325(b). Moreover, OPP policy clearly permits its divisions to amend an EPA registration from a repack to an integrated process.

While we would hope that you would agree that we have complied with the letter of EPA's regulations, if necessary, we are pleased to confirm our original meeting date of Thursday March 20th at 11:00 a.m. as previously arranged by Andrew Brcyeland with you, members of your team and Assistant Director John Leahy. The purpose of this meeting would to understand from BPPD and OPP why our application is deficient in the context of § 158.325(b) so we, in turn, can explain to growers/end users why we are unable to meet their demands this spring for our product which is intended to prevent the loss of trees from disease.

Thank you for your assistance in this matter. I would appreciate your e-mailing me tomorrow to advise me if it will be necessary for me to travel to Washington to meet with you or Thursday or whether this matter can be resolved without a meeting.

Sincerely,

William Stringfellow

Hollis, Linda

From: Hollis, Linda
Sent: Tuesday, March 18, 2014 12:28 PM
To: Leahy, John
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert; Burnett, Gina
Subject: RE: Reliant Systemic Fungicide EPA.No 83416-1 submission

Clarity from OGC.

The requested action, amending the repack by adding an unregistered source, CAN be completed as an amendment vs a new product application as the formulations are virtually identical. (See Erin's interpretation below). The new formulation uses a source of the active ingredient that is more pure than the existing source product but the nominal concentrations remain the same.

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Cc: Kaczmarek, Chris
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Privileged attorney-client communication

[redacted]

Erin S. Koch
Pesticides and Toxic Substances Law Office Office of General Counsel US EPA
202-564-1718

From: Leahy, John
Sent: Tuesday, March 18, 2014 10:50 AM
To: Hollis, Linda
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: Re: Reliant Systemic Fungicide EPA.No 83416-1 submission

Okay, thanks . I'll stop by after staff meetings and you can fill me in on Erin's input.

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Sent: Tuesday, March 18, 2014 10:45:00 AM
To: Leahy, John
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
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Will keep you posted.

From: Leahy, John
Sent: Tuesday, March 18, 2014 9:30:34 AM
To: Hollis, Linda
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: FW: Reliant Systemic Fungicide EPA.No 83416-1 submission

Hi Linda, Andy, and Leonard,

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Thanks,

John

From: Bill Stringfellow Quest [mailto:bill@questproducts.us]
Sent: Monday, March 17, 2014 4:36 PM
To: Hollis, Linda; Leahy, John
Cc: Bryceland, Andrew; Cole, Leonard S.; McNally, Robert
Subject: Reliant Systemic Fungicide EPA.No 83416-1 submission
Importance: High

Ms. Hollis:

Thank you for discussing over the telephone last Friday our application to amend EPA Reg. No. 83416-1. As outlined below, we request BPPD to approve our pending application to amend our end use ("EP") product that we intend to produce using an integrated system. We believe all of the necessary reviews have been completed by BPPD. We respectfully submit that submitting a new application at this juncture to register a manufacturing use product ("MUP") for incorporation into our EP is neither necessary, cost-effective or consistent with our business plans. As you are aware, we are under significant continuing pressure from the end user community to supply our Reliant Systemic Fungicide product this spring.

Quest Products explained to BPPD in writing from the outset our registration intentions – specifically, to amend our existing registration to permit the production of our EP from an integrated process, as expressly permitted by 40 C.F.R. § 158.325(b). Our original submission cover letter dated Sept.11, 2013 clearly set forth how and who assisted in its development from BPPD. We requested that BPPD expedite and complete its review of the chemistry section of our application by March 15, 2014 because we are without source of supply, and because we are facing demands from growers for a product that will aid in preventing the loss of trees from disease this spring.

BPPD has completed the front end primary screen of our application package. It completed its technical review, chemistry review and data matrix review as of February 4, 2014, subject to our making some minor additions and correction, which we have addressed or are in process of sending to the reviewer. In summary, BPPD has completed all of the elements for a PRIA code B-681, and we request that, subject to our submitting the last piece of information, BPPD approve our registration. We have completed all of the product chemistry requirements to enable BPPD to approve an EPA produced from an integrated system. 40 C.F.R. § 158.325(b). Moreover, OPP policy clearly permits its divisions to amend an EPA registration from a repack to an integrated process.

While we would hope that you would agree that we have complied with the letter of EPA's regulations, if necessary, we are pleased to confirm our original meeting date of Thursday March 20th at 11:00 a.m. as previously arranged by Andrew Bryeland with you, members of your team and Assistant Director John Leahy. The purpose of this meeting would to understand from BPPD and OPP why our application is deficient in the context of § 158.325(b) so we, in turn, can explain to growers/end users why we are unable to meet their demands this spring for our product which is intended to prevent the loss of trees from disease.

Thank you for your assistance in this matter. I would appreciate your e-mailing me tomorrow to advise me if it will be necessary for me to travel to Washington to meet with you or Thursday or whether this matter can be resolved without a meeting.

Sincerely,

William Stringfellow

Agricultural Use

Reliant®

Systemic Fungicide

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSCAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS:	
Mono- and di-potassium salts of Phosphorous Acid*	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid. Equivalent to 3.35 lbs Phosphorous Acid/gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

CONSULT PAGE 2 OF THIS BOOKLET FOR FIRST AID & PRECAUTIONARY STATEMENTS

EPA Reg. No. 83416-1

Batch No.:

EPA Est. No. 71975-WA-001
EPA Est. No. 89083-FL-001

Date of Manufacture:

NET CONTENTS:

- ☐ 1 Quart
- ☐ 1 Gallon
- ☐ 2.5 Gallons
- ☐ 30 Gallons
- ☐ 55 Gallons
- ☐ 250 Gallons

Quest Products
Finding New Ways to Improve the Treatment of Trees and Plants.

Quest Products LLC.
11712 230th St. * Linwood KS 36052
Phone: 785-542-2577
Fax: 785-542-2561
www.QuestProducts.us

Agricultural Use

FIRST AID	
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. Hotline Number: National Poison Control, 1-800-222-1222	

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if swallowed, absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist or vapors. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Wear the appropriate Personal Protective Equipment (PPE).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators, mixers, loaders, and other handlers must wear:

- protective eyewear
- long pants and long-sleeved shirt
- waterproof gloves
- shoes plus socks

Follow manufacturer's instructions for maintaining/cleaning personal protective equipment (PPE). If no such instructions for washables, use hot water and detergent. Keep and wash PPE separately from other laundry.

When handlers use closed systems, aircraft or enclosed cabs in a manner that meets the requirements listed in the worker protection standard (WPS) for agricultural pesticides (40 CFR 170.240 (d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before drinking, eating, chewing gum, using tobacco or using the toilet.
- Remove PPE clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Use: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the state or tribal agency responsible for pesticide registration.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard CFR 40 part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours, unless wearing the appropriate PPE.

PPE required for early entry to treated areas that are permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soils or water, is: coveralls worn over short-sleeved shirt and short pants, waterproof gloves, shoes plus socks and protective eyewear.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements of this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or green houses.

Do not enter treated areas without protective clothing until sprays have dried.

CHEMIGATION

Use of RELIANT® SYSTEMIC FUNGICIDE through chemigation is not permitted in California.

Apply this product only through center pivot, solid set or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise

SPRINKLER AND DRIP (TRICKLE) IRRIGATION SYSTEMS:

The irrigation system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

(Sprinkler Chemigation Only): Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply RELIANT® SYSTEMIC FUNGICIDE continuously for the duration of the water application. After treatment with RELIANT® SYSTEMIC FUNGICIDE has been completed, avoid further irrigation of the treated area until foliage is dry or for 24 to 48 hours.

GENERAL APPLICATION INSTRUCTIONS

Apply RELIANT® SYSTEMIC FUNGICIDE by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip

For foliar sprays, apply RELIANT® SYSTEMIC FUNGICIDE with sufficient water volumes for adequate coverage of foliage, according to crop and growth stage. To ensure good coverage, spray to wetness, but avoid run-off.

When using RELIANT® SYSTEMIC FUNGICIDE with Pentra-Bark™ adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applications.

MIXING INSTRUCTIONS

1. Fill the spray tank with 1/4 – 1/2 of the volume of water required before adding RELIANT® SYSTEMIC FUNGICIDE.
2. Add RELIANT® SYSTEMIC FUNGICIDE slowly to the tank and agitate by mechanical or hydraulic means.
3. Continue agitating as tank fills with water to the desired volume.
4. Maintain agitation during application.

COMPATIBILITY

RELIANT® SYSTEMIC FUNGICIDE is compatible with most products used in agriculture. However, individual crop sensitivity to these mixtures may vary. Mixtures of RELIANT® SYSTEMIC FUNGICIDE with some foliar fertilizers and copper products are not always compatible or cause phytotoxicity to some plants. If these combinations or others have not been used previously, do not tank mix without first testing the compatibility of the tank mix. Do not apply tank mixture without first assessing its safety to the crop (phytotoxicity). Tank mix RELIANT® SYSTEMIC FUNGICIDE with fertilizers only if crop safety has been established and the RELIANT® SYSTEMIC FUNGICIDE use rates are followed.

Due to RELIANT® SYSTEMIC FUNGICIDE's acidic nature, do not use acidifying-type compatibility agents. If spray adjuvants are used test them before use to confirm compatibility with RELIANT® SYSTEMIC FUNGICIDE.

Use a jar test to confirm compatibility with RELIANT® SYSTEMIC FUNGICIDE. In a clean jar using the same water source that is normally used to fill spray tank, add the same proportions of each product and the appropriate quantity of water and mix thoroughly. Let stand for 3 minutes. If mixture remains in solution or is remixed readily the tank mix is compatible.

Spray the solution that results from the above compatibility test onto a few plants and inspect for visual effects of phytotoxicity (leaf burn) 3 to 7 days later.

GENERAL HYDROPONIC APPLICATIONS

For use with plants grown in recirculating hydroponic systems.

Disease	Rate	Application Program
General root rots (Pythium and Phytophthora spp) and root diseases	1 to 2 quarts RELIANT in 5300 gallons of nutrient solution OR 1 to 2 liters RELIANT in 20,000 liters of nutrient solution	Apply every 4 to 6 weeks in the summer and every 8 weeks in the fall. The application time interval may be modified depending on crop load, water quality, and disease pressure

AGRICULTURAL APPLICATIONS

APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE

Use RELIANT® for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot and scab (Venturia inaequalis)	Foliar spray	Apply 3 to 4 pints RELIANT per acre in 100 gallons water per acre 1/2 gallon RELIANTper acre in 25 – 250 gallons water per acre Or apply RELIANT at 0.5% (1/2 %) solution volume/volume concentration to foliage. Example: spray volume of 50 gpa, use 2 to 2.5 pints RELIANT	Apply in combination with a mancozeb-containing product at 3 lbs/acre. Apply at ¼- ½ inch green tip through first cover at 7 to 10 day intervals or according to forecasted infection events. Continue with RELIANT® and Captan in the remaining applications. First application at open cluster. Las application fifth cover or fruit at 2" to 2 1/2" diamete Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply RELIANT® immediately. NOTE: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
	Basal bark spray at bud swell or silver tip stage of growth in early spring	62.4 fl.oz. RELIANT + 62.4 fl. oz. of water + 3 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark™ on the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (treatment generally lasts 8 – 12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)
Root and collar rot (Phytophthora cactorum) Fire Blight (Erwinia amylovora)	Foliar spray	Apply at 1 ¼ to 2 ½ quarts RELIANTper acre with a maximum of 250 gallons water per acre. 2 ½ to 5 pints in 100 gallons of water per acre.	Thorough spray coverage of plant is required. Start applications when conditions favor disease development. Apply at one to two month intervals between treatments. Use the low rate on the shorter interval an the high rate on the longer interval. Under high disease pressure use higher application rate and shorter spray interval. Ensu thorough coverage.
	Basal bark spray treat in spring and fall for best results	62.4 fl. oz. RELIANT + 62.4 fl. oz. of water + 3 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark™ around the complete circumference of the tree trunk saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8 – 12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control)

ASPARAGUS

Use RELIANT® for effective control of crown rot & asparagus spear slime disease in asparagus.

Disease	Application Method	Rate	Application Program
Crown rot & Asparagus spear slime (Phytophthora spp.)	Foliar spray	1 ¼ quarts RELIANT per acre in 25 gallons water to 2 ½ quarts RELIANTper acre in 250 gallons water	Apply to ferns that have 2 to 3 inches of new growth. Do not apply to ferns that are starting to die down (senesce). Established plantings, start applications when conditions are favorable to disease (cool wet conditions). Ensure thorough coverage.

Avocados Use RELIANT® for effective control of root rot, trunk cankers and downy mildew disease in avocado.

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora cinnamomi)	Tree injection	Skeletal trees 1st year: 1/4 fl. oz. RELIANT per yard of canopy diameter. Other situations: 3/4 teaspoon RELIANT with 1/2 fl. oz. of water per yard of canopy diameter.	Inject trees at spring flush maturity. Repeat treatment in February or March. Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, Smart Shot injector or hydraulic tree injection. Do not prune back trees before injection process as burning of new growth may occur. Do not inject trees in winter months. Do not cut back the canopy of injected trees. Do not add any material, other than water, to RELIANT by trunk injection. Do not inject more liquid in a lesser number of syringes than directed.
	Foliar spray	2 quarts RELIANT in 100 gallons of water per acre	Spray to run off at 2- 2 ½ gallons of spray solution per adult tree. Start applications in spring, up to 4 applications a year at two-month intervals. Ensure thorough coverage.
Canker (Phylophthora citricola)	Trunk spray	1 ¼ to 2 ½ quarts mixed with 5 gallons of water with 6 fl. oz. of Pentra-Bark Penetrating Surfactant	Apply to trunk lesions using sufficient spray volume to completely wet the trunk and lesions. If lesions absent, apply to trunk from soil level up to two feet up trunk. If lesions present use higher rate.
Downy Mildew	Foliar spray	3 ¼ pints in 100 to 500 gallons of water	Spray to run-off, as required for disease control

BERRIES

Use RELIANT® for effective control of root rot, general leaf and berry diseases such as those caused by Septoria spp., and downy mildew, and for suppression of Anthracnose spp., Fusicoccum canker, phomopisis canker, in bush and cane berries such as, but not limited to, bingleberries, blackberries, black satin berries, blueberries, boysenberries, Cherokee blackberries, Chesterberries, Cheyenne blackberries, coryberries, cranberries, darrowberries, dewberries, Dirksen thornless berries, elderberries, Himalayaberries, huckleberries, hullberries, Lavacaberries, loganberries, lowberries, lucretiaberries, mammoth blackberries, marionberries, mulberries, nectarberries, olallieberries, Oregon evergreen berries, raspberries (red, black, hybrids/cultivars), and youngberries.

Use RELIANT for effective control of root rot in bush and cane berries such as, but not limited to, blueberries, blackberries, loganberries, and raspberries (red, black, hybrids/cultivars).

Disea	Application Method	Rate	Application Program
Root rot (Phytophthora spp.)	Foliar spray	1–3 quarts RELIANT per 100 gallons of water per acre. Ensure foliage is completely wet.	New plantings: start application when new growth is 2 to 3 inches long. Established plantings start applications when cool wet conditions occur which favor disease. West of Rocky Mountains: Autumn applications, apply when conditions favor disease, repeat in 4 weeks. Spring applications, first application after bud break and repeat in 4 weeks. East of Rocky Mountains: First application spring post bud break (2 to 3 inches new growth) and repeat at 50 to 60 day intervals. Do not exceed 4 applications per season. For blueberries – First application in spring at pink bud and then on a regular schedule of application at two to three intervals.
General leaf and berry diseases such as those caused by Septoria spp. and Anthracnose spp.	Root Dip	Mix a 2.50% v/v solution (1 quart RELIANT per 10 gallons of water)	Apply as pre-plant dip to the roots for 2-3 minutes. Plant within 48 hours after dipping. Mix a fresh solution daily.
	Chemigation Overhead	1 to 2 quarts RELIANT in 1000 gallons of water per acre	Apply with normal irrigation schedule. Do not apply more than 4 times per crop cycle.
	Low Volume	2 to 3 quarts RELIANT in 100 gallons of water per acre	
Downy Mildew	Foliar spray	1 ½ to 2 quarts RELIANT in 20 to 100 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 3 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle. RELIANT is best when used in combination with conventional registered fungicides to increase the performance of the disease control program.

Downy mildew (Peronospora parasitica)	Foliar spray	1 ¼ quarts to 2 ½ quarts RELIANT per acre in 25 to 250 gallons of water per acre.	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases. Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Diseases caused by Septoria, Collectotrichum, Alternaria, and Powdery mildew	Foliar spray	1 to 2 quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

CEREAL GRAINS

Apply RELIANT® to crops such as, but not limited to, field corn, ornamental corn, sweet corn, Indian corn, wheat, rye, barley, oats, triticale, and sorghum (milo). Use RELIANT® for effective control of damping-off and root rot diseases.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 ½ quarts to 2 quarts RELIANT per acre in 25 to 100 gallons of water	Corn: Apply at 14-day intervals from 4-leaf stage, as needed. Assure good coverage. Other grains: Apply at 14 – 21 day intervals, as needed. Assure good coverage.

CITRUS- Mature trees

Use RELIANT® for effective control of root rot and collar rot diseases in citrus.

Disease	Application Method	Rate	Application Program
Brown rot and foot root rot Phytophthora spp.	Foliar spray	2 ½ quarts RELIANT per acre in a maximum of 250 gallons of water	**When conditions favor disease.** Spray trees to run off ensure even coverage. Do not apply at high temperatures (above 95°F) particularly if humidity is low or to moisture-stressed trees.
Root rot and collar rot (Phytophthora spp. nicotianae and Phytophthora citrophthora)	Trunk spray Soil Spray	Mix 1 ¼ to 2 ½ quarts RELIANT in a minimum of 5 gallons of water with 1 to 3 fl. oz. of Pentra-Bark Penetrating Surfactant. 2 ½– 4 qts Reliant per acre in a minimum 20 gpa.	Spray trunk lesions with enough spray volume to ensure lesions are completely wet. When disease levels are high, use higher rate.

COCONUTS

Use RELIANT® for effective control of bud rot and nut fall in coconuts.

Disease	Application Method	Rate	Application Program
Bud rot – Nut fall (Phytophthora palmivora)	Injection	Between 2 tsp. and 1 fl. oz. RELIANT per tree	Dilute RELIANT® with water to give final injection volume of 1 fl. oz. to 2 fl. oz. of water and RELIANT®. Inject into the trunk or root system.

COTTON

Use RELIANT® for effective control of damping-off and root rot disease in cotton.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1 to 2 quarts RELIANT in 30 to 50 gallons of water acre	Apply at crop emergence every 21 days or during wet conditions that favor pathogen development.
	Side dress at planting or in furrow	1 to 1 ½ qts per acre	Apply at planting either in furrow, or side dress, can be applied with liquid row starter fertilizers with previous compatibility check

CUCURBITS

Use RELIANT® for effective control of sudden wilt, gummy stem blight, downy mildew, powdery mildew, Alternaria leaf blight, and bottom soft root complex, and for suppression of Anthracnose diseases in cucurbits grown in field situations such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp. balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (Phytophthora spp.)	Foliar spray	1 – 3 quarts RELIANT per 100 gallons.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (Mycosphaerella melonis)			Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Downy mildew (Pseudoperonospora cubensis)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per season.
Powdery mildew and other leaf diseases such as Anthracnose and Alternaria leaf blight	Foliar spray	2 to 2 ½ quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Bottom Soft Rot Complex	Foliar spray	2 to 2 ½ quarts RELIANT in up to 100 gallons of water per acre.	Apply after fruit set and during bulking 3 during the growing season.

CUCURBUTS, TANK MIXTURES

For the effective control of downy mildew diseases, tank-mix RELIANT® with a mancozeb-containing fungicide and apply to cucurbits.

Product	Disease	Rate Per Acre	Application Program
RELIANT® + mancozeb-containing fungicide	Downy mildew	Light to medium foliage cover: Apply 1 ¼ – 2 quarts RELIANT per acre. Heavy foliage cover: Apply 3 quarts ELIANT per acre+ Label rate of mancozeb	Apply as a ground foliar spray the indicated quantity and dilution rates with water of both products. For best results apply RELIANT® as a tank mix with protectant fungicides such as mancozeb, copper oxychloride, etc., to ensure both pre- and post-infection activity.

FRUITING VEGETABLES

Use RELIANT® for effective control of damping-off, root rot, gummy stem blight, bacterial diseases, downy mildew, powdery mildew, and Alternaria leaf blight, and for suppression of Anthracnose on fruiting vegetables such as but not limited to eggplant, tomatoes, tomatillos, peppers, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	R	Application Program
Eggplant: Pythium and Phytophthora spp., and Gummy stem blight (Mycosphaerella melonis)	Foliar spray	Apply 1 ¼ quarts RELIANT per acre in 40 gallons of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season. Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent.
Peppers: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		1 ½ to 2 quarts RELIANT per acre in 25 to 100 gallons of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Tomatoes/Tomatillos: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		1 ½ to 2 quarts RELIANT per acre in 25 to 100 gallons of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.

Root Rot and damping off (Phytophthora spp and Pythium spp)	Foliar spray	1 to 2 quarts RELIANT in 30 gallons of water per acre	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle. For control of bacterial leaf spot of tomatoes, apply the high rate of RELIANT with registered bactericides.
Bacterial diseases	Pre-plant seedling Nursery treatment	1 quart RELIANT in 100 gallons of water to nursery plants in seedling trays 1 to 7 days prior to out planting	
	Transplant and furrow application	3 pints RELIANT at planting or to newly planted seedlings by side dressing or shank application	
	Chemigation Overhead	1 to 2 quarts RELIANT in 1000 gallons of water per acre	
Downy mildew	Foliar spray	1 to 2 quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Powdery mildew and other leaf diseases such as Anthracnose and Alternaria leaf blight	Foliar spray	1 to 2 quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

GRAPES

Use RELIANT® for effective control of downy mildew and black rot in grapes.

Disease	Application Method	Rate	Application Program
Downy mildew (Plasmopara viticola) Black Rot	Foliar spray	Early season small canopy, 1¼ quarts RELIANT per acre in up to 100 gallons of water Late season/large canopy, 2-2½ quarts RELIANT per acre in up to 100 gallons water	It is essential that the rate of RELIANT be adjusted to the vine-row volume, i.e., the volume of vine foliage per acre. Spray timing is critical. Apply RELIANT at times of high disease risk, especially between the time that conditions are conducive to downy mildew and black rot infection and the appearance of oil spots. Ensure spray coverage is adequate and that the appropriate rate of RELIANT is applied to match vine growth and water volume, particularly from mid- season onwards, and especially where grapes are grown on root stock. Use rotation fungicides that also control black rot in combination with Reliant, such as Captan, Copper, Mancozeb and others
Phytophthora and Pythium root rots and suppression of Armalleria	Foliar Spray	1 ½ to 2 quarts RELIANT in 50 to 100 gallons of water per acre	Apply to vines that have a stressed root system that can lead to root rots. Mitigating factors such as nematode pressure, water logging, and compaction contribute to vine declines. Table Grapes: Begin application in the spring at the 4 to 6 inch shoot stage. Continue applications at 1 to 2 week intervals until flowering. Resume applications in the fall after harvest. Do not apply more than 4 times per crop cycle. Wine and Raisin Grapes: Begin applications in the spring at the 4 to 6 inch shoot stage. Continue applications at 1 to 2 week intervals through flowering. Do not apply more than 4 times per crop cycle.
Downy mildew	Foliar spray	1 ½ to 2 quarts RELIANT in 50 gallons of water per acre RELIANT is most effectively applied to control downy mildew when tank is mixed with other registered fungicides.	Apply at bud break with additional applications at 7 to 10 day intervals in a rotational program with other registered fungicides. Use higher rate and volume based on disease severity and density of canopy. Do not apply more than 6 times per crop cycle.
Powdery mildew	Foliar spray	2 to 2 ½ quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply at lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

GRAPES, TANK MIXTURES

For the effective control of downy mildew diseases, tank-mix RELIANT® with a mancozeb-containing fungicide and apply to grapes.

Diseae	Application Method	Rate	Application Program
Downy mildew and Black rot	Foliar spray	Early season small canopy, 1 ¼ quarts RELIANT per acre in 50 to 100 gallons water Late season/large canopy, 2 to 2 ½ quarts RELIANT per acre in Up to 100 gallons water + Label rate of Mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products. For best results apply RELIANT as a tank mix with protectant fungicides such as Mancozeb, copper oxychloride, etc., to ensure both pre- and post-infection activity.

HERBS AND SPICES

Use RELIANT for effective control of Downy mildew, Phytophthora spp and Pythium spp diseases of Herbs and Spices grown in fields, nurseries, and greenhouses. Apply RELIANT to plants such as, but not limited to, Anise, Balm, Basil, Chamomile, Caraway, Catnip, Celery, Chives, Coriander, Cumin, Curry Leaf, Dill, Fennel, Marjoram, Mint, Nasturium, Rosemary, Sage, Savory, Sweet Bay, Tarragon, Thyme, and Wintergreen. Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray	1 ¼ to 2 ½ quarts RELIANT per 100 gallons of water OR ½ to 1 1/8 fl. oz. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp and Pythium spp	Foliar spray	1 to 2 quarts RELIANT per 100 gallons of water OR 2 to 4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. Note do not apply more than 500 gallons of spray solution per acre.
	Soil drench	6 ¼ to 12 ¾ fl. oz. RELIANT per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.

HOPS

Use RELIANT® SYSTEMIC FUNGICIDE for effective control of downy mildew in hops.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	1 – 3 quarts RELIANT per 100 gallons of water per acre	conditions favor disease. apply when A. Shoots are 1/2 to 1 foot long. B. Post-training when vines are 6 feet high. C. 21 days post-application (B) D. During bloom

Leafy Vegetables

Use Reliant® for effective control of root rot, damping off, downy mildew, powdery mildew and other fungal diseases and for suppression of Anthracnose in leafy vegetables such as but not limited to: amaranth, arugula. Cardoon, celery, chevil, corn salad, endive, fennel, lettuce, parsley, radiccicho, rhubarb, spinach and Swiss Chard.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	1 to 2 quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle. Ensure spray coverage is adequate to wet the whole plant.
Root rots and damping off (Phytophthora spp and Pythium spp)	Foliar spray	Apply 1 to 2 quarts RELIANT in 40 gallons of water per acre	Begin application after plants are established and conditions favor disease development.
	Pre-plant nursery application	1 quart RELIANT in 100 gallons of water to nursery plants in seedling trays 1 to 7 days prior to out planting	Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle.
	Chemigation Overhead	Apply 1 to 2 quarts RELIANT in 1000 gallons of water per acre	High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
	Low Volume	Apply 1 to 2 quarts RELIANT in a minimum of 100 gallons of water per acre	Apply with normal irrigation schedule. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle.
	Transplant and Furrow application	3 pints RELIANT at planting or to newly planted seedlings by side dressing or shank application	High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

HOPS

Use RELIANT® SYSTEMIC FUNGICIDE for effective control of downy mildew in hops.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	1 – 3 quarts RELIANT per 100 gallons of water per acre	conditions favor disease. apply when A. Shoots are 1/2 to 1 foot long. B. Post-training when vines are 6 feet high. C. 21 days post-application (B) D. During bloom

Leafy Vegetables

Use Reliant® for effective control of root rot, damping off, downy mildew, powdery mildew and other fungal diseases and for suppression of Anthracnose in leafy vegetables such as but not limited to: amaranth, arugula. Cardoon, celery, chevil, corn salad, endive, fennel, lettuce, parsley, radiccicho, rhubarb, spinach and Swiss Chard.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	1 to 2 quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle. Ensure spray coverage is adequate to wet the whole plant
Root rots and damping off (Phytophthora spp and Pythium spp)	Foliar spray	Apply 1 to 2 quarts RELIANT in 40 gallons of water per acre	Begin application after plants are established and conditions favor disease development.
	Pre-plant nursery application	1 quart RELIANT in 100 gallons of water to nursery plants in seedling trays 1 to 7 days prior to out planting	Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle.
	Chemigation Overhead	Apply 1 to 2 quarts RELIANT in 1000 gallons of water per acre	High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle
	Low Volume	Apply 1 to 2 quarts RELIANT in a minimum of 100 gallons of water per acre	Apply with normal irrigation schedule. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle.
	Transplant and Furrow application	3 pints RELIANT at planting or to newly planted seedlings by side dressing or shank application	High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

Powdery mildew and leaf diseases such as Anthracnose (Collectotrichum spp), leaf blights (Septoria and Cercospora spp), and bacterial rots (Erwinia spp)	Foliar spray	1 ½ to 2 quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

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LEGUMES

Use RELIANT® for effective control of damping-off, root rot, Fusarium, Rhizoctonia, downy mildew, powdery mildew, and other fungal diseases and for suppression of Anthracnose in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto beans, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 ½ to 2 quarts RELIANT per acre in 25 to 250 gallons of water per acre	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Phytophthora and Pythium spp Fusarium and Rhizoctonia	Foliar spray Pre-plant nursery application Transplant and furrow application	1 ½ to 2 ½ quarts RELIANT in 30 gallons of water per acre 1 quart RELIANT in 100 gallons of water to nursery plants in seedling trays 1 to 7 days prior to out planting. 3 pints RELIANT at planting or to newly planted seedlings by side dressing or shank application	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Downy mildew	Foliar spray	1 to 3 quarts RELIANT in 30 gallons of water per acre	Lower Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1-2 week intervals. Do not apply more than 6 times per crop cycle. Higher Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7-10 day intervals. Do not apply more than 6 times per crop cycle.
Powdery mildew and leaf disease such as Anthracnose (Collectotrichum spp), leaf blights (Septoria and Cercospora spp), and bacertial rots (Erwinia spp)	Foliar spray	2 to 2 ½ quarts RELIANT in 30 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

MANGOS
Use RELIANT for effective control of suppression of Anthracnose in mangos.

Disease	Application Method	Rate	Application Program
Anthracnose (Colletotrichum gloeosporoides)	Foliar spray	3 to 4 quarts RELIANT per 100 gallon of water	Spray tree every 14 days during blossom period, then monthly until harvest. Spray to the point of run-off.

NONGRASS ANIMAL FEED
Use RELIANT® for effective control of damping-off and root rot diseases in forage crops such as, but not limited to, alfalfa, clover, and vetch.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp	Foliar spray	1 ½ TO 2 quarts RELIANT 25 to 100 gallons of water per acre	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

OKRA, COFFEE, PAPAYA and PERSIMMON
Use RELIANT® for effective control of damping-off, root rot, downy mildew, powdery mildew, and other bacterial and leaf diseases, and for suppression of Anthracnose diseases in coffee, okra, papaya, and persimmon.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium ssp	Foliar spray	1 ½ to 2 quarts RELIANT in 25 to 250 gallons of water per acre	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Phytophthora and Pythium spp	Foliar spray	1 to 2 quarts RELIANT in 25 to 100 gallons of water per acre	Begin application after plants are established and conditions favor disease development.
Bacterial and leaf diseases such as coffee berry disease, Anthracnose (Collectotrichum spp), and various leaf spots (Septoria and Cercospora spp)	Foliar spray	1 to 2 quarts RELIANT in 25 to 100 gallons of water per acre	Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
	Root dip	Mix a 0.25% v/v solution (1/3 fl. oz. RELIANT with 1 gallon of water	Apply as pre-plant dip to transplants immediately prior to

			planting. Dip plants momentarily and plant within. Mix a fresh solution daily.
	Chemigation Overhead	2 to 3 quarts RELIANT in 100 gallons of water per acre.	Apply with normal irrigation schedule.
		2 to 4 quarts RELIANT in 100 gallons of water per acre.	Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle.
	Transplant and furrow application	3 pints RELIANT at planting or to newly planted seedlings by side dressing or shank application	High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Downy mildew or Downy Mildew	Foliar spray	1 to 3 quarts RELIANT in up to 100 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle.
			High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7 to 10 week intervals. Do not apply more than 6 times per crop cycle.
Pseudomonas garcae	Foliar spray	Mix a 0.50% v/v solution (2 quarts RELIANT per 100 gallons of water)	Apply prior to onset of disease. Apply spray to saturation or runoff.

ONIONS

Use RELIANT® for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora destructor)	Foliar spray	2 quarts RELIANT in 100 gallons water per acre	As a regular preventative control program or when disease first appears.

ONIONS, TANK MIXTURES

For the effective control of downy mildew diseases, tank-mix RELIANT® with a mancozeb-containing fungicide and apply to onions, garlic and shallots.

Disease	Application Method	Rate	Application Program
RELIANT® + mancozeb-containing fungicide	Downy mildew	2 quarts RELIANT in 100 gallons water per acre + Label rate of Mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products For best results, apply RELIANT® as a tank mix with protectant fungicides such as Mancozeb to ensure both pre- and post-infection activity

PEANUTS

Use RELIANT® for effective control of damping-off and root rot disease in peanuts and for suppression of Anthracnose and white mold complex in peanuts.

Disease	Application Method	Rate	Application Program
Phylophthora and Pythium spp.	Foliar spray	1 ½ to 2 quarts RELIANT in 25 to 250 gallons of water per acre	Apply at 14-day intervals, as necessary. Ensure thorough coverage.
Root rots, pod rots, damping off, wilt (Phytophthora and Pythium spp)	Foliar spray	2 to 2 ½ quarts RELIANT in 100 gallons water per acre	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Leaf and crown diseases, Anthracnose (Collectothricum)	Transplant and furrow applications	3 pints RELIANT at planting or to newly planted seedlings by side/top dressing or shank application	
White mold	Foliar application	2 to 2 1/2 quarts Reliant	Apply preventatively at disease on set or during times when potential pathogen infection can occur

PINEAPPLES

Use RELIANT® for effective control of Phytophthora root and heart rot diseases in pineapples.

Disease	Application Method	Rate	Application
Phytophthora root and heart rot (Phytophthora cinnamomi and parasitica spp.)	Foliar spray	2 to 2 ½ quarts RELIANT in 50-100 gallons of water per acre	Apply to tops, 14 days prior to harvest of planting material. Will treat enough slips to plant one acre. Established plantings when conditions favor disease. Apply at 90 day intervals. Ensure thorough coverage of plants.
	Pre-plant dip	1 ¼ quarts RELIANT in 100 gallons water per acre	
	Foliar spray	2 quarts RELIANT in 100 gallons water per acre	

POTATOES, POST-HARVEST

Use RELIANT® only on russet-skinned potatoes intended for processing for suppression of late blight (Phytophthora infestans), pink rot (Phythophthora erythroseptica), and powdery mildew. Apply 16.5 fl. oz. of RELIANT per ton of tubers in one half gallon of water as a mist spray. For the best control, be sure the tubers are completely and evenly covered.

Disease	Application Method	Rate	Application Program
Potatoes, Post-harvest: late blight (Phytophthora infestans) and pink rot (Phytophthora erythroseptica)	Spray on tubers	16.5 fl. oz. RELIANT in ½ gallon of water/ton of tubers	Apply only to russet-skinned potatoes intended for processing. For best results, be sure tubers are thoroughly and evenly covered.
Late blight (phytophthora infestans) and pink rot (Phytophthora erythroseptica)	Foliar spray	2 to 2 ½ quarts RELIANT in 50 gallons of water per acre	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle. Late blight management using RELIANT requires the high

	Seed piece spray	Mix a 15% v/v solution (0.3 quart RELIANT with 2 quarts of water). Treat 2 tons of tubers per 1 gallon of solution.	application rate and is most effectively applied when tank mixed with other registered fungicides. Treat seed pieces with a full coverage spray.
Powdery mildew	Foliar spray	1 to 3 quarts RELIANT in 50 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 4 times per crop cycle. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat application at 7 to 10 day intervals. Do not apply more than 4 times per crop cycle.

ROOT AND TUBER VEGETABLES

Use RELIANT® for effective control of foliar and root rot but not limited to ginseng, damping-off and root rot diseases in carrots, radishes and late blight disease and storage diseases such as pink rot and pythium leak in potatoes, sweet potatoes, and yams and other similar root and tuber crops.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (Phytophthora cactorum)	Foliar spray	2 ½quarts RELIANT in 100 gallons of water per acre	In cool wet conditions that favor Phytophthora. Apply at 7 day intervals. Do not exceed a total of 8 applications per season.
Carrots: Phytophthora and Pythium spp.	Foliar spray	1 ½ to 2 quarts RELIANT in 25 gallons to 250 gallons of Water per acre	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Pink rot and Pythium leak (Phytophthora erythroseptica and Pythium spp.)	In-furrow spray	2–5 quarts RELIANT in 10 gallons water per acre	Apply in a band spray directly over top of potato seed just before row is closed.

Potatoes, Sweet Potatoes, Yams: Late blight, Pink rot and Pythium leak (Phytophthora infestans, Phytophthora erythroseptica and Pythium spp.)	Foliar spray	1 ¼ quarts RELIANT in 90 – 375 gallons water of water per acre	Apply at 5 to 14 day intervals subject to disease incidence.
Downy mildew	Foliar spray	1 to 3 quarts RELIANT in 10-50 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

STONE FRUIT

Use RELIANT® for effective control of root, collar rot and almond pruning wound, and various cherry canker diseases, and suppression of armillaria on stone fruit such as, but not limited to, apricots, sweet and tart cherries, nectarines, peaches, plums, and fresh prunes.

Disease	Application Method	Rate	Application Program
Root and collar rot (Phytophthora spp.)	Foliar spray	2 ½ quarts RELIANT in 250 gallons water per acre	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest
	Basal bark spray Apply in spring and fall.	62.4 fl. oz. RELIANT + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.
Almond pruning – wound cankers (Phytophthora syringae)	Foliar spray Paint wound with solution	1 ¼ – 2 ½ quarts RELIANT in 100 gallons water per acre 50-50 solution of water and Reliant	Apply to pruning wound and surrounding area, ensure area is thoroughly wet. In high disease situations use higher rate. Or paint wounds with concentrated solution

Suppression of armillaria root rot (Armillaria tabescens)	Basal bark spray	1 ½ to 2 quarts RELIANT + 2 quarts water + 1% Pentra-Bark Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs if present. For large trees larger than 18 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attacked by Armillaria root rot, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 18 inches DBH, make an early spring application.

STRAWBERRIES

Use RELIANT® for effective control of leather rot, red stele and Phytophthora, foliar and bacterial disease in strawberries and suppression of powdery mildew.

Disease	Application Method	Rate	Application Program
Phythophthora and Pythium spp (red steele, leather rot, and root rot)	Pre-planting dip	1 ¼ quarts RELIANT in 100 gallons water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties.
	Foliar spray	1–3 quarts RELIANT in 50 – 100 gallons water per acre 1 ¼ to 2 ½ quarts RELIANT in 90-200 gallons of water per acre **(CA only)**	Annual crops, first treatment 14 to 21 days post planting, repeat at 1 – 2 month intervals when disease is evident. Perennial crops, first treatment during spring growth flush, repeat at 1 – 2 month intervals when disease is evident. For susceptible varieties use higher rates and shorter spray intervals.
Foliar fungal and bacterial diseases (Rhizopus and Xanthomonas) Red stele (Phytophthora fragariae)	Transplant and furrow application	3 pints RELIANT at planting or to newly planted seedlings by side dressing or shank application	Grey mold and Anthracnose suppression using RELIANT requires use of high application rates and is most effective when tank mixed with other registered fungicides.
Leather rot (Phytophthora cactorum)	Foliar spray	1–3 quarts RELIANT in 50 – 100 gallons water per acre 1 ¼ to 2 1/2 quarts RELIANT per acre in 90-200 gallons of water per acre in **(CA only)**	Apply at 10% bloom and early fruit set, then at one to two week intervals as required for disease control. In high disease situations use higher rates and shorter spray intervals.

Phytophthora spp	Dip	Mix a 0.25% v/v solution (1 quart RELIANTY in 100 gallons of water)	Dip runners in the solution for 1 to 2 minutes. Plant within 48 hours. Mix a fresh solution daily.
Suppression of powdery mildew	Foliar spray	2 to 2 ½ quarts RELIANT in 50 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.

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TREE NUTS

Use RELIANT for effective control of root and collar rot, scabs and almond pruning-wound canker disease in tree nuts such as, but not limited to, almonds, beech nuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapin, hickory nuts, macadamia nuts, pecans, pistachios, and walnuts.

Disease	Application Method	Rate	Application Program
Other than macadamia nuts: Root and collar rot (Phytophthora spp.)	Foliar spray	1 ¼ quarts RELIANT in 125 gallons water per acre	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest
Other than macadamia nuts: Almond pruning –wound canker (Phytophthora syringae)	Paint or spray	2 ½ quarts RELIANT in 100 gallons water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet.
Macadamia nuts: Raceme blight (Phytophthora spp.)	Foliar spray	3 ¾ quarts RELIANT in 250 gallons of water per acre	Apply when disease is first seen and reapply at 3 week intervals. Spray to the point of run-off.
Root rot, crown rot, trunk cankers, foliar blights (Phytophthora and Pythium spp) Foliar bacterial and fungal disease, Anthracnose (Collectotrichum), bull rot (Monilia spp), flower diseases (Cladosporium spp), Alternaria leaf spots (Alternaria spp), and raceme blight (Phytophthora) in macadamia	Foliar spray Root Dip	2 to 2 ½ quarts RELIANT in 100 gallons of water per acre Mix 0.5% v/v solution (2 quarts RELIANT in 100 gallons of water)	Begin application after plants are established and conditions favor disease development Low Disease Pressure: Apply lower rate at 3 month intervals. Do not apply more than 4 times per crop cycle. High Disease Pressure: Apply higher rate at monthly intervals. Do not apply more than 4 times per crop cycle. Dip roots in the solution for 30 seconds. Plant within 48 hours. Mix a fresh solution daily.
Pecan scab	Foliar spray	2 quarts RELIANT in 50 to 100 gallons of	Apply preventatively with other products shown to be effective against pecan scab.
Pruning wound, crown and trunk cankers (Phytophthora spp)	Trunk spray	2 quarts RELIANT + 2 quarts of water + 1% Pentra-Bark Bark Penetrating Surfactant	Apply higher rate when lesions are present. Clean wound sites and apply on and around the lesions using enough spray volume to thoroughly wet the lesions. Apply to the trunk from the soil line to 5 feet up the trunk. Apply one time in the Spring, Summer, and Fall.

Pruning wound, crown and trunk cankers (Phytophthora spp)	Trunk spray	2 quarts RELIANT + 2 quarts of water + 1% Pentra-Bark Bark Penetrating Surfactant	Apply higher rate when lesions are present. Clean wound sites and apply on and around the lesions using enough spray volume to thoroughly wet the lesions. Apply to the trunk from the soil line to 5 feet up the trunk. Apply one time in the Spring, Summer, and Fall.
Downy mildew Powdery mildew	Foliar spray	1 to 2 quarts RELIANT in 20 to 100 gallons of water per acre	Lower Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per crop cycle.
Tree cankers and suppression of Armillaria	Basal bark spray	1 ½ to 2 quarts RELIANT + 2 quarts water + 1% Pentra-Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil lone, including the base of the first scaffolding limbs, if present. For large trees larger 18 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attacked by Armillaria root rot, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 18 inches DBH, make an early spring application at or about at bud swell.
1,000 Cankers of Walnut, Geosmithia morbida on both Black and English Walnut	Foliar spray	2 to 2 ½ qt. RELIANT in 50 gallons of water per acre	Foliar spray every 60 days starting in early spring in combination with an insecticide that controls Walnut Twig Beetle, Pityphthorous juglandis during insect flight times. Maximum 6 times per year
	Basal Bark spray	Spray apply 32 oz RELIANT in 48 oz water with 2oz Pentra—Bark Surfactant per 18 inches of tree DBH	Spray apply to tree trunk circumference from ground level to first scaffold limb or to 6 feet up tree trunk.

SEED TREATMENT APPLICATIONS

Use RELIANT® for effective control of Phytophthora and Pythium diseases on agricultural crop seeds from crops listed elsewhere on this label. Do not use treated seed for food, feed, or oil. Dye used to color treated seed must be an EPA approved dye (refer to 40 CFR 153-155 (c)). Seed treatment on agricultural establishment in hopper-box, planter box, or other seed treatment application at or immediately before planting is within the scope of WPS, while commercial treatment of seeds is not within the scope of WPS.

Disease	Application Method	Rate
Phytophthora, Pythium and Fusarium spp.	Can be applied at-planting or in commercial seed treatment operations.	8–24 fl. oz. RELIANT® per 100 lbs. of seed or 4–10 quarts RELIANT® per ton of seed, depending on the size of the seeds to be treated.

GRASS GROWN FOR SEED PRODUCTION

Use RELIANT® for effective control of damping-off and root rot diseases in turf grasses such as, but not limited to, Bermuda, fescue, bent, blue, rye, zoysia, buffalo, and poa annua.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1½ to 2 quarts RELIANT in 25 to 250 gallons of water to 2 quarts per acre	Apply at 14–21 day intervals, as necessary. Ensure thorough coverage.

LANDSCAPE, GOLF COURSE, NURSERY, FORESTRY, AND PARK APPLICATIONS

Use RELIANT® for effective control of Phytophthora, Pythium, suppression of Armillaria and other diseases associated with Stem and Canker Blight, and phloem and xylem inhabiting cankers, such as Botryosphaeria, Nectria, Thyronectria, Cytospora, phomopsis, Hypoxylon, Seiridium canker, Sudden Oak Death, (Phytophthora ramorum), Beech Decline, general tree decline syndromes, for suppression of Anthracnose and Verticillium wilt on various shade trees in landscapes, nurseries, golf courses, forests, and parks. Apply RELIANT® to trees such as, but not limited to, Ash, Aspen, Azalea, Bald Cypress, Beech, Black Gum, Black Locust, Birch, Buckeye, Catalpa, Cedar, Cherry (Stonefruits), Chestnut, Coffee Tree, Crab Apple, Cork Tree, Dogwood-All, Elder, Elm, Fir, Golden Raintree, Hazelnut, Hawthorne, Honey Locust, Juniper, Lilac, Linden, London Plane tree, Magnolia, Maples-All, Mock Orange, Pine, Oaks-All (Coastal, Live, Shreve, Black, Canyon), Olives, Ornamental Pear, Plum, Pyracantha, Red Bud, Smoke Tree, Sumac, Sweet Birch, Sweet Gum, Sycamore, Tulip Tree, Viburnum, Walnut, White Pine, White Cedar, Willow, Witch Hazel, Zelkova and various conifers in the landscape.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury. When applying to do not overspray and use care to apply only to target plants.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp., and Phytophthora ramorum	Injection	11 fl. oz. RELIANT per 21 fl. oz. of water OR 1/2 TPS. RELIANT per TPS. of water	Drill holes 3/16 inch (5 mm) in diameter into live sapwood (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection per yard of diameter of canopy measured at the drip-line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet®, Sidewinder®, Ag-murf Gun®, Marley® Injector, Smart Shot injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.
	Basal bark spray (all other tree species) apply in spring and fall. Best for thin bark trees such as maples, lindens, sycamores, and dogwoods	62.4 fl. oz. RELIANT® + 62.4 fl. oz. of water + 3 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.

Disease	Application Method	Rate	Application Program
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray (pines) Apply anytime active growth is observed.	1 gallon of RELIANT® + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ BarkPenetrating Surfactant	Apply uniformly to 5to 6 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker) and Gnomonia platani (Sycamore Anthracnose)	Injection	20 ml per tree of a 1 gallon RELIANT® + 2 gallons of water + 4 fl. oz. of Pentra- Bark™ solution	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, Smart Shot injector or positive pressure hydraulic tree injection. Trees should be at least 10" diameter at breast height.
Apple black spot and scab (Venturia inaequalis) and Anthracnose	Basal bark spray apply early spring at bud swell or silver tip stage of growth	62.4 fl. oz. RELIANT + 62.4 fl. oz. of water + 3 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8–12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.) Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices. For severe infestation of anthracnose, make a fall (at leaf senesce) and spring (bud swell to green tip) application for large trees.
Various Tree Cankers	Basal Bark spray apply at green tip or spring bud break	48 fl/oz Reliant with 82.4oz of water and 1 fl/oz of Pentra Bark surfactant	Apply early spring and repeat in fall prior to leaf senesce for severe canker infestations.
Fire blight	Foliar spray	1 ½ to 2 quarts RELIANT in 100 gallons of water	First application pre bloom (bud swell or silver tip stage). Application intervals: 7 days until end of bloom period. Apply spray to thoroughly wet all foliage.
Fire blight	Basal Bark Spray	Use 50/50 mixture Reliant with water and 1% Pentra Bark	Apply at bud swell
Suppression of Anthracnose	Foliar spray	2 quarts RELIANT in 100 gallons water per acre	Apply at pre bloom (bud swell or green tip stage) with a supplemental application 14 days later with RELIANT or other fungicide compound with efficacy on Anthracnose.

Suppression of Anthracnose	Basal bark spray Apply early spring at bud swell until green tip stage of growth	62.4 fl. oz. RELIANT + 62.4 fl. oz. of water + 1.5 to 3.0 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. For large trees larger than 18 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attached by Anthracnose, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 18 inches DBH, make an early spring application.
Suppression of Verticillium wilt	Foliar spray	2 quarts RELIANT in 100 gallons of water per acre	For trees previously identified with infections, apply first application pre-bloom. Repeat applications between 21 to 30 days.
Suppression of Verticillium wilt Suppression of Armillaria	Basal bark spray	1 ½ to 2 quarts RELIANT + 2 quarts of water + 2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. For large trees larger than 24 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attacked by Verticillium wilt, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 24 inches DBH, make an early spring application.
Needle Cast		2 to 2 ½ qt RELIANT sprayed to run off	**Treat when symptoms first appear. Repeat application 30 days**
1,000 of Walnut, *Geosmithia morbida* English and Black	Foliar spray	2 to 2 ½ qts RELIANT in 50 GPA or a 1% solution sprayed to run-off	Start spray program in spring and treat every 60 days in combination with insecticide program for control of Walnut Twig Beetle, *Pityophthorous juglandis* during times of insect flight
	Basal Bark spray	Spray apply 32 oz. of RELIANT in 48 oz. water with 2 oz Pentra Bark surfactant per 18 DBH inches of tree diameter	Spray trunk circumference from ground level to 6 feet up tree or to first scaffold limb to saturation runoff. Treat in spring leaf out and fall approaching leaf senesce . Use in combination with an effective insecticide program for Walnut Twig Beetle.

ORNAMENTAL APPLICATIONS

Use RELIANT® for effective control of Bacterial blight, Downy mildew, powdery mildew, Phytophthora spp. and Pythium spp. Diseases and for suppression of Anthracnose and blights on Ornamentals in landscapes, nurseries, golf courses, parks, interiorscapes, and greenhouses. Apply RELIANT® to plants such as, but not limited to, Aglaonema, Anthurium, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, field, landscape, and mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or plant injury may occur. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid plant injury.

Disease	Application Method	Rate	Application Program
Bacterial blight (Xanthomonas campestris) pathovars: dieffenbachiae, fici hederae, and syngonii	Foliar spray	2 – 4 pints RELIANT per 100 gallons of water OR 2 – 4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 7 to 14 days. Repeat as required.
Downy mildew	Foliar spray	1 1/2 – 2 1/2 RELIANT quarts in 100 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per crop cycle. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7 to 10 day intervals.
Phytophthora spp., Phytophthora ramorum, and Pythium spp.	Foliar spray	1 – 2 quart RELIANT per 100 gallons of water OR 2 – 4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	6 1/4 – 12 3/4 fl. oz. RELIANT per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
	Soil incorporation	1 – 2 pints RELIANT per cubic yard of soil	Just prior to potting, mix 1 to 2 pts. of RELIANT® into each cubic yard of growing media. If disease pressure is high, apply foliar spray or soil drench.
	Bare rooted dipping of transplants	2 pints RELIANT per 100 gallons of water OR 2 tsp. RELIANT per gallon	Immediately before transplanting, dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.

Powdery mildew	Foliar spray	1 ½ to 2 ½ quarts RELIANT in 50 gallons of water per acre	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1-2 week intervals. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7-10 day intervals. Do not apply more than 6 times per crop cycle. Application amount depends upon plant type, maturity, and application technique/method.
Suppression of Anthracnose	Foliar spray	2 to 2 ½ quarts RELIANT in 50 gallons of water per acre	Apply prior to onset of disease. Apply spray to saturation or runoff.
black spot roses		2 qtr. per 100 gallons or 0.5% solution concentration	apply when disease present spray to run off

NURSERY AND BEDDING PLANTS

Use RELIANT® for effective control of Downy mildew, Phytophthora spp. and Pythium spp. diseases of BEDDING PLANTS grown in landscapes, nurseries and golf courses, parks, interiorscapes, and greenhouses. Apply RELIANT® to plants such as, but not limited to, Ageratum, Aglaonema, Algerian Ivy, Anthurium, Aphelandra, Arborvitae, Artemesia, Aster, Azaleas, Baby's Breath, Begonia, Bougainvillea, Boxwood, Caladium, Carnation, Cattelya Skinneri, Ceanothos, Chrysanthemum, Cissus, Coleus, Columbine, Cotoneaster, Daisy, Delphinium, Dieffenbachia, Dogwood, Easter Lily, English Ivy, Ficus, Foxglove, Gaillardia, Geranium, Gloxinia, Hibiscus, Impatiens, Japanese Holly, Juniper, Lavender, Leather Fox Fern, Marigold, Monterey Pink, Pansy, Peperomia, Petunia, Philodendron, Phlox, Photinia, Pieris, Pinks, Pittosporum, Poinsettia, Pothos, Primrose, Prostrate Rosemary, Rosemary, Rhododendron, Salvia, Schefflera, Sedium, Sempervivum, Snapdragon, Spathiphyllum, Taxus Media, Verbena, Vinca, White Cedar, White Pine, Zinnia and Zygocactus. RELIANT may also be used for Vegetable Transplants grown in Greenhouse, Lath house, or Shadehouse sites.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	1 1/4 – 2 1/2 quarts RELIANT per 100 gallons of water OR 1/2–1 1/8 fl. oz. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp. and Pythium spp.	Foliar spray	1–2 quarts RELIANT per 100 gallons of water OR 2–4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. NOTE: Do not apply more than 500 gallons of spray solution per acre.
	Soil drench	6 1/4 – 12 3/4 fl. oz. RELIANT per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
Phytophthora spp.*	Foliar spray	2 quarts RELIANT per acre	Apply spray in 20 – 60 gallons per acre.
	Hand gun	2 quarts RELIANT per 100 gallons of water	Apply spray to thoroughly wet all foliage.

*Lavender applications

CONIFERS IN COMMERCIAL NURSERIES, PLANTATIONS AND FORESTS (INCLUDING CHRISTMAS TREES)

Apply RELIANT® in conjunction with good cultural management practices for effective control of root rot (Phytophthora spp) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to CONIFERS that are moisture or heat stressed.

Disease	Application Method	Rate	Application Program
Phytophthora	Foliar spray	1–2 quartsRELIANT per 100 gallons of water OR 2–4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1–2 quarts RELIANT per 100 gallons of water OR 2–4 tsp. RELIANT per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	1 quart RELIANT per 100 gallons of water OR 2 tsp. RELIANT per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray Apply any time active growth is observed.	1 gallon RELIANT® + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line.
	Injection	20 ml per tree of a 1 gallon RELIANT® + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ solution	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

Do not graze livestock in treated areas of conifer nurseries or plantations. Do not feed forage from treated areas of plantations and/or nurseries.

TURF

Use RELIANT® for the effective control of Rhizoctonia, Pythium and damping-off diseases, and for suppression of Anthracnose of turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. RELIANT per 1000 sq. ft.	Apply indicated quantity of product in 1 to 2 gallons of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Application intervals: 14 – 21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.
Suppression of Anthracnose	Foliar spray	5 to 10 fl. oz. RELIANT per 1000 sq. ft.	Apply indicated quantity of product in 2-5 gallons of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Apply every 14 to 21 days in a fungicide rotational program. Do no irrigate or mow treated areas until spray has completely dried.
Suppression of Pink Snow mold	Foliar spray	5 to 10 fl. oz. RELIANT in 2 gallons of water per 1000 sq. ft.	Apply when temperatures and conditions favor disease development and outbreak, or apply in fall prior to onset of winter with other snow mold controlling fungicides.
Suppression of Rhizoctonia	Foliar spray	5 to 10 fl. oz RELIANT in 2 gallons of water per 1000 sq. ft.	Apply prior to onset of disease. Apply every 7 to 14 days.

TURF TANK MIXTURES

For the effective control of summer stress complex caused by a complex of Rhizoctonia and Pythium diseases, tank-mix RELIANT® with Fore® WP [or Protect T/O or mancozeb-containing] fungicide and apply to turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms.

Product	Disease	Rate per 1000 sq. ft.	Application Program
RELIANT® + FORE® WP** [or Protect T/O or mancozeb-containing fungicide]	Summer Stress Complex (Rhizoctonia and Pythium spp.)	5 to 10 fl. oz. RELIANT® + 4 to 8 fl. oz. FORE® WP** [or Protect T/O or mancozeb-containing fungicide]	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. as a foliar spray. Start as a preventive spray at two-week intervals and repeat as required. Do not irrigate or mow treated areas until spray has completely dried.
	Pink Snow mold	5 to 10 oz per 1,000 sq.ft	Apply prior to disease development or when conditions favor disease outreak

**Registered trademark of Rohm & Haas.

Do not graze animals on treated areas of turf. Do not feed treated turf clippings to poultry or livestock.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE:

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants. If transfer to another container becomes necessary, ensure that the container is clearly labeled, the container is a type suitable for the product, and is clean and free of other materials.

PESTICIDE DISPOSAL:

Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL:

Nonrefillable container. Do not use or refill this container.

Containers with a capacity of equal to or less than 5 gallons: Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Containers with a capacity of greater than 5 gallons: Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip the container on its side and roll it back and forth, insuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, keep out of smoke.

WARRANTY AND DISCLAIMER

To the extent permitted by applicable law, all conditions and warranties and statutory or other rights of action which buyer or any other user may have against Quest Products LLC. are hereby excluded. To the extent permitted by applicable law, Quest Products LLC. hereby gives notice to buyer and other users that it will not accept responsibility for any indirect or consequential loss arising from reliance on product information provided by Quest Products LLC. or on its behalf unless it is established that such information or advice was provided negligently and that the product has been used strictly as directed. To the extent permitted by applicable law, Quest Products LLC's liability shall in all circumstances be limited to replacement of product or a refund of the purchase price thereof.

Residential Use

Reliant®

Systemic Fungicide

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSCAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS:	
Mono- and di-potassium salts of Phosphorous Acid*	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid. Equivalent to 3.35 lbs Phosphorous Acid/gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

CONSULT PAGE 2 OF THIS BOOKLET FOR FIRST AID & PRECAUTIONARY STATEMENTS

EPA Reg. No. 83416-1

Batch No.:

EPA Est. No. 71975-WA-001
EPA Est. No. 89083-FL-001

Date of Manufacture:

NET CONTENTS:

- ☐ 1 Quart
- ☐ 1 Gallon
- ☐ 2.5 Gallons
- ☐ 30 Gallons
- ☐ 55 Gallons
- ☐ 250 Gallons

Quest Products
Finding New Ways to Improve the Treatment of Trees and Plants.

Quest Products LLC.
11712 230th St. * Linwood KS 66052
Phone: 785-542-2577
Fax: 785-542-2531
www.QuestProducts.us

Residential Use

FIRST AID	
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. Hotline Number: National Poison Control, 1-800-222-1222	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if swallowed, absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist or vapors. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Wear the appropriate Personal Protective Equipment (PPE).

Applicators must wear:
Protective Eye wear
Long pants, and long sleeved shirt
Waterproof gloves
Shoes and socks

ENVIRONMENTAL HAZARDS

For Terrestrial Use: To protect the environment do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Apply this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product. For use only in home gardens, on home lawns, and on home ornamentals and related home plants.

When using RELIANT® with Pentra-Bark™ adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applications.

GENERAL APPLICATION INSTRUCTIONS

Apply RELIANT® by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip. For foliar sprays, apply RELIANT® with sufficient water volumes for adequate coverage of foliage, according to plant type and growth stage. To ensure good coverage, spray to wetness, but avoid run-off. Harvest when dry.

When applying RELIANT® to plant species for the first time, spray a limited number of plants first and wait for 3-7 days. Then check for leaf burn (phytotoxicity).

MIXING INSTRUCTIONS

1. Fill the spray tank with 1/4 — 1/2 of the volume of water required before adding RELIANT®
2. Add RELIANT slowly to the tank and agitate
3. Fill tank with balance of water to the desired volume
4. Agitate during application

Conversion Table

1/8 fl. oz.	=	3/4 teaspoon (tsp.)		
1/4 fl. oz.	=	1 1/2 tsp.		
1/3 fl. oz.	=	2 tsp.		
1/2 fl. oz.	=	3 tsp.		
2/3 fl. oz.	=	4 tsp.		
3/4 fl. oz.	=	4 1/2 tsp.		
1 fl oz.	=	2 tablespoons (Tbs.)	=	6 tsp.

CITRUS, FRUIT, NUT AND VEGETABLE APPLICATIONS

APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE

Use RELIANT® for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot and scab (Venturia inaequalis)	Foliar spray	3-4 tsp RELIANT per gallon of water	Apply at ¼ - ½ inch green tip through first cover at 7 to 10 day intervals or according to forecasted infection events. Continue with RELIANT® and Captan in the remaining applications. First application at open cluster. Last application at fifth cover or fruit at 2" to 2 1/2" diameter. Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply RELIANT® immediately. NOTE: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
	Basal bark spray apply early spring at bud swell or at silver tip stage of growth	16 fl. oz. RELIANT + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control). Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices.
Root and collar rot (Phytophthora cactorum) Fire Blight (Erwinia amylovora)	Foliar spray	2 1/2-5 tsp RELIANT® per gallon of water	Thorough spray coverage of plant is required. Start applications when conditions favor disease development. One apply at one to two month intervals between treatments. Use the low rate on the shorter interval and the high rate on the longer interval. Under high disease pressure use higher application rate and shorter spray interval. Ensure thorough coverage.
	Basal bark spray apply spring and fall for best results	16 fl. oz. + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)

ASPARAGUS

Use RELIANT® for effective control of crown rot & asparagus spear slime disease in asparagus crops.

Disease	Application Method	Rate	Application Program
Crown rot & Asparagus spear slime (Phytophthora spp.)	Foliar	1/3 fl. oz. RELIANT per gallon of water	Apply to ferns that have 2 to 3 inches of new growth. Do not apply to ferns that are starting to die down (senesce). Established plantings, start applications when conditions are favorable to disease (cool wet conditions). Ensure thorough coverage.

AVOCADOS

Use RELIANT® for effective control of root rot, trunk cankers and downy mildew disease in Avocado.

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora cinnamomi)	Tree injection	Skeletal trees 1st year: 1/4 fl. oz. RELIANT undiluted per yard of canopy diameter. Other situations: 1/8 fl. oz. RELIANT diluted with 1/2 fl. oz. of water per yard of canopy diameter	Inject trees at spring flush maturity. Repeat treatment in February or March. Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, Smart Shot injector, or hydraulic tree injection. Do not prune back trees before injection process as burning of new growth may occur. Do not inject trees in winter months. Do not cut back the canopy of injected trees. Do not add any material, other than water, to RELIANT® by trunk injection. Do not inject more liquid in a lesser number of syringes than directed.
	Foliar spray	1/3 fl. oz. RELIANT per gallon of water	Spray to runoff at 2 – 2 1/2 gallons of spray solution per adult tree. Start applications in spring, up to 4 applications a year at two-month intervals. Ensure thorough coverage.
Canker (Phytophthora citricola)	Trunk spray	8 to 16 fl. oz. RELIANT with one gallon of water + 1.2 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply to trunk lesions using sufficient spray volume to completely wet the trunk and lesions. If lesions absent, apply to trunk from soil level to two feet up trunk. If lesions present use higher rate.
Downy mildew	Foliar spray	3/4 teaspoon per gallon of water	Spray to runoff, as required for disease control.

BERRIES

Use RELIANT® for effective control of root rot, general leaf and berry diseases such as those caused by Septoria spp., and downy mildew, and for suppression of Anthracnose spp. in bush and cane berries such as, but not limited to, bingleberries, blackberries, black satin berries, blueberries, boysenberries, Cherokee blackberries, Chesterberries, Cheyenne blackberries, coryberries, cranberries, darrowberries, dewberries, Dirksen thornless berries, elderberries, Himalayaberries, huckleberries, hullberries, Lavacaberries, loganberries, lowberries, lucretiaberries, mammoth blackberries, marionberries, mulberries, nectarberries, olalliieberries, Oregon evergreen berries, raspberries (red, black, hybrids/cultivars), and youngberries.

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora spp.)	Foliar spray	2 – 6 tsp. RELIANT per gallon of water. Ensure foliage is completely wet.	New plantings: start application when new growth is 2 to 3 inches long. Established plantings start applications when cool wet conditions occur which favor disease. West of Rocky Mountains: Autumn applications, apply when conditions favor disease, repeat in 4 weeks. Spring applications, first application after bud break and repeat in 4 weeks. East of Rocky Mountains: First application spring post bud break (2 to 3 inches new growth) and repeat at 50 to 60 day intervals. Do not exceed 4 applications per growing season. For blueberries – First application in spring at pink bud and then on a regular schedule of application at two to three intervals.
General leaf and berry diseases such as those caused by Septoria spp and Anthracnose spp	Root dip	Mix a 2.50% v/v solution (3 fl. oz. RELIANT/1 gallon of water)	Apply as pre-plant dip to the roots for 2-3 minutes. Plant within 48 hours after dipping. Mix a fresh solution daily.
Downy mildew	Foliar spray	2 to 4 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 3 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 intervals. Do not apply more than 6 times per growing season. RELIANT® is best when used in combination with conventional registered fungicides to increase the performance of the disease control program.

BRASSICAS

Use RELIANT® for effective control of downy mildew, damping-off, root rot, bacterial, and fungal diseases in brassicas such as, but not limited to, broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccolo, collards, Chinese cabbage, Chinese mustard cabbage, kale, kohlrabi, mizuna, mustard greens, mustard spinach and rape greens.

Disease	Application Method	Rate	Application Program
Root rot and damping off (Phytophthora spp and Pythium spp)	Foliar spray	1 to 2 fl. oz. RELIANT per gallon of water	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
	Pre-plant seedling Treatment	2 tsp. RELIANT in 1 gallon of water to plants in seedling trays 1 to 7 days prior to out planting	
	Transplant and furrow application	3 pints RELIANT at planting or to newly planted seedlings by side dressing	
Downy mildew (Peronospora parasitica)	Foliar spray	2 tsp. to 2 fl. oz. RELIANT per gallon of water California: 1/3 to ½ fl. oz. per gallon of water	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases.
Diseases caused by Sclerotia, Collectotrichum, Alternaria, and powdery mildew	Foliar spray	1 to 2 fl. oz. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.

CITRUS - Mature trees

Use RELIANT® for effective control of root rot and collar rot diseases in citrus.

Disease	Application Method	Rate	Application Program
Brown rot and foot rot Phytophthora spp.	Foliar spray	1 teaspoon RELIANT per gallon of water	When conditions favor disease. Spray trees to run off ensure even coverage. Do not apply at high temperatures (above 95°F) particularly if humidity is low or to moisture-stressed trees.
Root rot and collar rot (Phytophthora spp. nicotianae and Phytophthora citrophthora)	Trunk spray	8 fl. oz. to 16 fl. oz. RELIANT per gallon of water with ¼ to ½ fl. oz. Pentra- Bark™ Bark Penetrating Surfactant	Spray trunk lesions with enough spray volume to ensure lesions are completely wet. When disease levels are high use higher rate.
Pre-harvest blue and green mold and brown rot (Phytophthora citricola)	Foliar spray	4 tsp. RELIANT per gallon of water	Apply 2-4 weeks prior to harvest. Ensure fruit is thoroughly covered by the spray application.

COCONUTS

Use RELIANT® for effective control of bud rot and nut fall in coconuts.

Disease	Application Method	Rate	Application Program
Bud rot – Nut fall (Phytophthora palmivora)	Injection	1/3 to 1 fl. oz. RELIANT per tree	Dilute RELIANT® with water to give final injection volume of 1 fl. oz. to 2 fl. oz. of water and RELIANT®. Inject into the trunk or root system.

CUCURBITS

Use RELIANT® for effective control of sudden wilt, gummy stem blight, downy mildew, powdery mildew, Alternaria leaf blight, and bottom soft root complex, and for suppression of Athracnose in cucurbits such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp. balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (Phytophthora spp.)	Foliar spray	2 – 6 tsp. RELIANT per gallon of water Apply 1 fl. oz. RELIANT per gallon of water (CA only)	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (Mycosphaerella melonis)			Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Downy mildew (Pseudoperonospora cubensis)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per growing season.
Powdery mildew and other leaf diseases such as Anthracnose and Alternaria leaf blight	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Bottom soft rot complex	Foliar spray	4-5 tsp. RELIANT per gallon of water	Apply after fruit set and during bulking 3 times during the growing season.

FRUITING VEGETABLES

Use RELIANT® for effective control of damping-off, root rot, and gummy stem blight diseases, bacterial diseases, downy mildew, powdery mildew, and Alternaria leaf blight, and for suppression of Anthracnose in eggplant, tomatoes, tomatillos, and peppers such as, but not limited to, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	Rate	Application Program
Eggplant: Pythium and Phytophthora spp., and Gummy stem blight (Mycosphaerella melonis)	Foliar spray	Apply 1 fl. oz. RELIANT per gallon of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season. Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent. Do not exceed a total of 6 applications per growing season.
Peppers: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		2 tsp. to 2 fl. oz. RELIANT per gallon of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.

Tomatoes/Tomatillos: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		2 tsp. to 2 fl. oz RELIANT per gallon of water California: 3 tsp. per gallon of water	First application at transplant or when direct seeded crops are at 2--4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Root rot and damping off (Phytophthora spp and Pythium spp)	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
	Pre-plant seedling treatment	1 tsp. RELIANT in 1 gallon of water to plants in seedling trays 1 to 7 days prior to out planting.	
Bacterial diseases	Transplant and furrow application	2 to 6 tsp RELIANT at planting or to newly planted seedlings by side dressing.	For control of bacterial leaf spot of tomatoes, apply the high rate of RELIANT with registered bactericides.
Downy mildew	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Powdery mildew	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Black spot roses		2 to 6 tsp. per gallon or 0.5% solution concentration	apply when disease present spray to run off

GRAPES

Use RELIANT® for effective control of root rot, downy mildew, and powdery mildew diseases in grapes.

Disease	Application Method	Rate	Application Program
Downy mildew (Plasmopara viticola)	Foliar spray	½ fl. oz. RELIANT per gallon of water	It is essential that the rate of RELIANT be adjusted to the vine-row volume, i.e., the volume of vine foliage per acre. Spray timing is critical. Apply RELIANT at times of high disease risk, especially between the time that conditions are conducive to downy mildew infection and the appearance of oil spots. Ensure spray coverage is adequate and that the appropriate rate of RELIANT® is applied to match vine growth, particularly from mid- season onwards, and especially where grapes are grown on root stock.
Phytophthora and Pythium root rots	Foliar spray	½ fl. oz. RELIANT per gallon of water	Apply to vines that have stressed root system that can lead to root rots. Mitigating factors such as nematode pressure, water logging, and compaction contribute to vine declines. Table Grapes: Begin application in the Spring at the 4 to 6 inch shoot stage. Continue applications at 1 to 2 week intervals until flowering. Resume applications in the Fall after harvest. Do not apply more than 4 times per growing season. Wine and Raisin Grapes: Begin applications in the Spring at the 4 to 6 inch shoot stage. Continue applications at 1 to 2 week intervals through flowering. Do not apply more than 4 times per growing season.
Downy mildew	Foliar spray	1/2 to 1 fl. oz. RELIANT per gallon of water RELIANT is most effectively applied to control downy mildew when mixed with other registered fungicides.	Apply at bud break with additional applications at 7 to 10 day intervals in a rotational program with other registered fungicides. Use higher rate and volume based on disease severity and density of canopy. Do not apply more than 6 times per growing season.
Powdery mildew	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.

LEAFY VEGETABLES

Use RELIANT® for effective control of root rot, damping-off, downy mildew, powdery mildew, and other fungal leaf diseases, and for suppression of Anthracnose in leafy vegetables such as, but not limited to, amaranth, arugula, cardoon, celery, chervil, chrysanthemum, corn salad, cress, dandelion, dock, endive, fennel, lettuce, orach, parsley, purslane, radicchio, radish, rhubarb, spinach, and Swiss chard. Excludes Brassica vegetables.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	1 2/3 fl. oz. RELIANT per gallon of water	Ensure spray coverage is adequate to wet the whole plant. During warm, wet conditions repeat application at 7 to 10 day intervals, if needed.
Root rots and damping off (Phytophthora and Pythium spp)	Foliar spray	1 to 1 ½ fl. oz. RELIANT per gallon of water	Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
	Pre-plant application	2 tsp. RELIANT in 1 gallon of water to plants in seedling trays 1 to 7 days prior to out planting.	
Powdery mildew and leaf diseases such as Anthracnose (Colletotrichum spp), leaf blights (Septoria and Cercospora spp), and bacterial rots (Erwinia spp)	Foliar spray	1 ½ to 2 fl. oz. RELIANT per gallon of water	

LEGUMES

Use RELIANT® for effective control of damping-off, root rot, Fusarium, Rhizoctonia, downy mildew, powdery mildew, and other fungal diseases, and for suppression of Anthracnose in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto beans, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. RELIANT per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Phytophthora and Pythium spp. Fusarium and Rhizoctonia	Foliar spray Pre-plant application Transplant and furrow application	2 tsp to 6 tsp quarts RELIANT per gallon of water per acre. 2 tsp. RELIANT in 1 gallon of water to plants in seedling trays 1 to 7 days prior to out planting 3 tsp RELIANT at planting or to newly planted seedlings by side dressing	Apply at crop emergence or during periods of crop stress caused by Summer Stress Syndrome or wet conditions that favor disease development. Begin application after plants are established and conditions favor disease development. Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Downy mildew	Foliar spray	1 to 2 fl. oz. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of the disease. Repeat applications at 1-2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at the first onset of disease. Repeat applications at 7-10 day intervals. Do not apply more than 6 times per growing season.
Powdery mildew and leaf diseases such as Anthracnose (Collectotrichum spp), leaf blights (Septoria and Cercospora spp), and bacterial rots (Erwinia spp)	Foliar spray	2 tsp. to 6 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset of disease. Repeat applications at 1-2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat application at 7-10 day intervals. Do not apply more than 6 times per growing season.

HERBS AND SPICES

Use RELIANT for effective control of downy mildew, phytophthora spp and pythium spp diseases of Herbs and Spices grown in fields, nurseries, and greenhouses. Apply RELIANT to plants such as, but not limited to, anise, balm, basil, chamomile, caraway, catnip, celery, chives, coriander, cumin, curry leaf, dill, fennel, marjoram, mint, nasturtium, rosemary, sage, savory, sweet bay, tarragon, thyme, and wintergreen.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray	½ to 1 1/8 fl. oz. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp And Pythium spp	Foliar	2-4 tsp. RELIANT per gallon of water	
	Soil Drench	1/8 tsp. RELIANT per gallon of water	Apply each gallons of solution to an area of 4 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.

HOPS

Use RELIANT® for effective control of downy mildew in hops.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	2–6 tsp. RELIANT per gallon of water	When conditions favor disease, apply when A. Shoots are ½ to 1 foot long. B. Post-training when vines are 6 feet high. C. 21 days post-application (B) D. During bloom

Powdery mildew	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at the first onset of disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at the first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Pseudomonas garcae	Foliar spray Ground	Mix a 0.50% v/v solution (4 tsp RELIANT per gallon of water)	Apply prior to onset of disease. Apply spray to saturation or runoff.

NONGRASS ANIMAL FEED

Use RELIANT® for effective control of damping-off and root rot diseases in forage crops such as, but not limited to, alfalfa, clover, and vetch.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. RELIANT per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

OKRA

Use RELIANT® for effective control of damping-off and root rot diseases in okra.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. RELIANT per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

ONIONS

Use RELIANT® for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora destructor)	Foliar spray	4 tsp. RELIANT per gallon of water	As a regular preventative control program or when disease first appears.

PEANUTS

Use RELIANT® for effective control of damping-off and root rot disease and for suppression of Anthracnose in peanuts.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. RELIANT per gallon of water	Apply at 14-day intervals, as necessary. Ensure thorough coverage.

Root rots, pod rots, damping off, wilt (Phytophthora and Pythium spp)	Foliar spray	4 to 5 tsp. RELIANT per gallon of water	Begin application after plants are established and conditions favor disease development.
Leaf and crown diseases, Anthracnose (Collectothricum)	Transplant and furrow application	3 tsp to 6 tsp RELIANT at planting or to newly planted seedlings by side dressing	Low Disease Pressure: Apply lower rate at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at 7 to 10 day intervals. Do not apply more than 6 times per growing season.

PINEAPPLES

Use RELIANT® for effective control of Phytophthora root and heart rot diseases in pineapples.

Disease	Application Method	Rate	Application Program
Phytophthora root and heart rot (Phytophthora cinnamomi and parasitica spp.)	Foliar spray	1 2/3 fl. oz. to 3 1/3 fl. oz. RELIANT oz. per gallon of water	Apply to tops. 14 days prior to harvest of planting material. Established plantings when conditions favor disease. Apply at 90 day intervals. Ensure thorough coverage of plants.
	Pre-plant dip	2 tsp. RELIANT per gallon of water	
	Foliar spray	2/3 fl. oz. RELIANT per gallon of water	

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ROOT AND TUBER VEGETABLES

Use RELIANT® for effective control of foliar and root rot in ginseng, damping-off and root rot diseases in carrots, and late blight disease and storage diseases such as pink rot and pythium leak, and downy mildew in potatoes, sweet potatoes, and yams.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (Phytophthora cactorum)	Foliar spray	4 ½ tsp. RELIANT per gallon of water	In cool wet conditions that favor Phytophthora. Apply at 7 day intervals. Do not exceed a total of 8 applications per season.
Carrots: Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. RELIANT per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Pink rot and Pythium leak (Phytophthora erythroseptica and Pythium spp.)	In-furrow spray	2 tsp to 6 tsp RELIANT per gallon of water	Apply in a band spray directly over top of potato seed just before row is closed.
Potatoes, Sweet Potatoes, Yams: Late blight, Pink rot and Pythium leak (Phytophthora infestans, Phytophthora erythroseptica and Pythium spp.)	Foliar spray	2/3 tsp to 3 tsp. RELIANT per gallon of water	Apply at 5 to 14 day intervals subject to disease incidence.
Downy mildew	Foliar spray	1 to 2 fl. oz. RELIANT per gallon of water	Low Disease Pressure: Apply the lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply the higher rate at the first onset of the disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.

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STRAWBERRIES

Use RELIANT® for effective control of leather rot, red stele and Phytophthora, foliar and bacterial disease in strawberries and suppression of powdery mildew.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp (red steele, leather Rot, and root rot)	Pre-planting dip	1/3 fl. oz. RELIANT per gallon of water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties.
Suppression of Rhizoctonia	Foliar spray	2 to 6 tsp. RELIANT per gallon of water	Annual crops, first treatment 14 to 21 days post planting repeat at 1-2 month intervals when disease is evident. Perennial crops, first treatment during spring growth flush, repeat at 1-2 month intervals when disease is evident. for susceptible varieties use higher rates and shorter spray intervals. For leather rot, apply at 10% bloom and early fruit set, then 1 to 2 week intervals as required for disease control. In high disease situations, use higher rate and shorter spray intervals. Grey mold and Anthracnose suppression using RELIANT® requires use of high application rates and is most effective when tank mixed with other registered fungicides.
	Transplant and furrow application	3 tsp RELIANT at planting or to newly planted seedlings by side dressing	
Phytophthora spp	Dip	Mix a 0.25% v/v solution (1/3 fl. oz. RELIANT with 1 gallon of water	Dip runners in the solution for 1 to 2 minutes. Plant within 48 hours. Mix a fresh solution daily.
Suppression of Powdery mildew	Foliar spray	1 to 1 ½ fl. oz. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at the first onset of the disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at the first onset of the disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Red stele (Phytophthora fragariae)	Pre-planting dip	1/3 fl. oz. RELIANT per gallon of water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties.

Foliar bacterial and fungal disease, Anthracnose (Collectotrichum), hull rot (Monilla spp), flower diseases (Cladosporium spp), Alternaria leaf spots (Alternaria spp), and raceme blight (Phytophthora) in Macadamia	Root dip	Mix a 0.5% v/v solution (4 tsp. RELIANT in 1 gallon of water)	Dip roots in the solution for 30 seconds. Plant within 48 hours. Mix a fresh solution daily.
Pecan scab	Foliar spray	1 ½ fl. oz. RELIANT per gallon of water	Apply preventatively at 21 to 30 day intervals.
Pruning wound, crown and trunk cankers (Phytophthora spp)	Trunk spray	1 ½ quarts RELIANT + 2 quarts of water + 1% Pentra-Bark Bark Penetrating Surfactant	Apply higher rate when lesions are present. Clean wound sites and apply on and around the lesions using enough spray volume to thoroughly wet the lesions. Apply to the trunk from the soil line to 5 feet up the trunk Apply one time in the Spring, Summer, and Fall.
Downy mildew (Phytophthora and Peronspora spp) Powdery mildew	Foliar spray	2 to 4 tsp. RELIANT per gallon of water	Low Disease Pressure: Apply lower rate at first onset disease. Repeat applications at 1 to 2 week intervals. Do not apply more than 6 times per growing season. High Disease Pressure: Apply higher rate at first onset of disease. Repeat applications at 7 to 10 day intervals. Do not apply more than 6 times per growing season.
Tree cankers	Basal bark spray	1 ½ to 2 quarts RELIANT + 2 quarts of water + 1% Pentra-Bark Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. For large trees larger than 18 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attacked by Armillaria root rot, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 18 inches DBH, make an early spring application.
1000 Cankers of Walnut, *Geosmithia morbidia* on both Black and English Walnut	Foliar spray	2 to 4 tsp per gallon of water spray until run off	Spray every 60 days from spring through fall. Use in combination with an insecticide that controls Walnut Twig Beetle, *Pityophthorous juglandis* maximum treatment 6 times per year
	Basal Bark Spray	Spray apply a solution of 32 oz. RELIANT and 48oz water with 2oz Pentra-Bark to 18 DBH inches of tree trunk	Spray apply to circumference of tree trunk until saturation runoff from ground level to 6 feet up or to first scaffold limb. Apply spring and fall. (DBH is measured diameter 4 ft above ground level)

LANDSCAPE APPLICATIONS

Use RELIANT® for effective control of Phytophthora and Pythium spp. and other diseases associated with Sudden Oak Death, Beech Decline, and general tree decline syndromes, and for suppression of Anthracnose and Verticillium wilt. Apply RELIANT® to trees such as, but not limited to, Ash, Azalea, Beech, Black Locust, Buckeye, Catalpa, Cedar, Cherry-Stonefruits, Chestnut, Coffee Tree, Crab Apple, Cork Tree, Dogwood-All, Elm, Fir, Hawthorne, Honey Locust, Juniper, Lilac, Linden, Magnolia, Maples-All, Pine, Oaks-All (Coastal, Live, Shreve, Black, Canyon), Olives, Ornamental Pear, Plum, Pyracantha, Redbud, Smoke Tree, Sumac, Sweet Birch, Sweet Gum, Sycamore, Viburnum, White Pine, White Cedar, and Willow.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp., and Phytophthora ramorum	Injection	11 fl. oz. RELIANT per 21 fl. oz. of water OR 1/2 tsp. RELIANT per tsp. of water	Drill holes 3/16 inch (5 mm) in diameter into live sapwood (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection per yard of diameter of canopy measured at the drip-line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet®, Sidewinder®, Ag-murph Gun®, Marley® Injector, Smart Shot Injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.
	Basal bark spray (all other tree species) apply spring and fall for best results or anytime active growth occurs. Best for thin bark trees such as maples, lindens, sycamores, and dogwoods	16 fl. oz. RELIANT + 16 fl. oz. of water + 1.6 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray (Pine)	16 fl. oz. RELIANT + 32 fl. oz. water + 0.5 fl. oz. of Pentra-Bark Bark Penetrating Surfactant	Spray a combination of RELIANT® and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)

Fusarium subglutinans (Pine Pitch Canker) and Gnomonia platani (Sycamore Anthracnose)	Injection	20 ml per tree of a 16 fl. oz. RELIANT® + 32 fl. oz. of water + 0.5 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant solution.	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, Smart Shot injector, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.
Apple black spot and scab (Venturia inaequalis), and suppression of Anthracnose Flire Blight	Basal bark spray apply in early spring at bud swell or silver tip stage of growth Foliar Spray	16 fl. oz. RELIANT + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark Bark Penetrating Surfactant Use 2-3tsp per gallon of water.	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either the first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Can be used as a preventative or curative application for trees listed. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices. For severe infestation of anthracnose, make a fall (at leaf senesce) and spring (bud swell to green tip) application for large trees.
Suppression of Anthracnose	Foliar spray	3-4 tsp. RELIANT per gallon of water	Apply at pre bloom (bud swell or green tip stage) with a supplemental application 14 days later with RELIANT or other fungicide compound with efficacy on Anthracnose.
Suppression of Anthracnose	Basal bark spray apply early spring at bud swell until green tip stage of growth	16 fl. oz. RELIANT + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. For large trees larger than 18 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attacked by Anthracnose, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 18 inches DBH, make an early spring application.

Disease	Application Method	Rate	Application Program
Suppression of Verticillium wilt	Foliar Spray	3-4 tsp. RELIANT per gallon of water	For trees previously identified with infections apply first application pre-bloom. Repeat applications between 21 to 30 days.
Suppression of Verticillium wilt	Basal Bark spray	1 ½ to 2 quarts RELIANT + 2 quarts water + 2 fl. oz. Pentra-Bark Bark Penetrating Surfactant	Spray a combination of RELIANT and Pentra-Bark around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. For large trees larger than 24 inches DBH (Diameter at Breast Height, 4.5 feet above ground) that have been previously attacked by Verticillium wilt, make a fall application prior to leaf senesce and a spring application for best results. For trees less than 24 inches DBH, make an early spring application.

ORNAMENTAL APPLICATIONS

Use RELIANT® for effective control of Bacterial blight, Downy mildew, powdery mildew, Phytophthora spp. (root rot) and Pythium spp. (damping-off) diseases, and Sudden Oak Death, and for suppression of Anthracnose of Ornamentals in landscapes and interiorscapes. Apply RELIANT® to plants such as, but not limited to, Aglaonema, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, landscape, mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that are in a state of dormancy. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Bacterial blight (Xanthomonas campestris) pothovars: dieffenbachiae, fici hederae and syngonii	Foliar spray	2–4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 7 to 14 days Repeat as required.
Black spot (Diplocarpon spp)	Foliar spray	2-4 tsp. RELIANT per gallon of water	Apply uniformly to foliage preventatively or at first sign of disease.
Downy mildew	Foliar spray	2-4 tsp. RELIANT per gallon of water	Apply uniformly to foliage at disease onset and repeat applications every 14 days. Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp. (root rot), Phytophthora ramorum, and Pythium spp. (damping-off)	Foliar spray	2–4 tsp. RELIANT per gallon of water	Apply uniformly to foliage to point of runoff. Apply spray to thoroughly wet all foliage. Application intervals: 14-21 days. Repeat as required.
	Soil drench	Mix a 0.5% to 1.0% v/v solution (1/2 to 6 ½ fl. oz. RELIANT in 1 to 5 gallons of water) 1/8 tsp. per gallon of water	Apply uniformly to soil at base of plant and surrounding soil. Apply each 25 gallons of solution to an area of 100 sq feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
	Soil incorporation	1–2 pints RELIANT per cubic yard of soil	Just prior to potting mix 1 to 2 pts of RELIANT® into each cubic yard of growing media. If disease pressure is high, make application by foliar spray or soil drench.
	Bare rooted dipping of transplants	2 tsp. RELIANT per gallon of water	Immediately before transplanting, dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.
Powdery mildew	Foliar spray	2 to 4 tsp. RELIANT per gallon of water	Apply uniformly to foliage at disease onset and repeat applications every 14 days.
Suppression of Anthracnose	Foliar spray	1 ½ fl. oz. RELIANT per gallon of water	Apply prior to onset of disease. Apply spray to saturation or runoff.

RESIDENTIAL NURSERY, GREENHOUSE, AND BEDDING PLANTS

Use RELIANT® for effective control of Downy mildew, Phytophthora spp. (root rot) and Pythium spp. (damping off) diseases of BEDDING PLANTS outdoors and in interiorscapes. Apply RELIANT® to plants such as, but not limited to, Ageratum, Aglaonema, Algerian Ivy, Anthurium, Aphelandra, Arborvite, Artemesia, Aster, Azaleas, Begonia, Baby's Breath, Bougainvillea, Boxwood, Caladium, Carnation, Cattelya, Skinneri, Ceanothos, Cissus, Chrysanthemum, Columbine, Coleus, Cotoneaster, Daisy, Delphinium, Dieffenbachia, Dogwood, Easter Lily, English Ivy, Ficus, Foxglove, Gaillardia, Geranium, Gloxinia, Hibiscus, Impatiens, Japanese Holly, Juniper, Lavender, Leather Leaf Fern, Marigold, Moterey Pink, Pieris, Peperomia, Petunia, Philodendron, Pansy, Phlox, Pinks, Pittosporum, Poinsettia, Pothos, Primrose, Prostrate Rosemary, Rosemary, Salvia, Schefflefa, Sedium, Sempervivum, Snapdragon, Spathiphyllum, Taxus Media, Verbena, Vinca, Verbena, White Cedar, White Pine, Zinnia, and Zygocactus. RELIANT may also be used for Vegetable Transplants grown in Greenhouse, Lathouse, or Shade house sites.

Make applications to outdoor or indoor plants before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	1/2 to 1 1/8 fl. oz. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp. (Root rot) and Pythium spp. (damping off)	Foliar Spray	2 to 4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. Note: Do not apply more than 500 gallons of spray solution per acre.
	Soil drench	1/8 tsp. RELIANT per gallon of water	Apply each gallon of solution to an area of 4 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
Phytophthora spp.* (root rot)	Foliar spray	¼ tsp. RELIANT per acre 100 sq. ft.	Apply spray in 20-60 gallons. 1 pint of water per acre 100 sq. ft.
Phytophthora spp.* (root rot)	Hand gun	2 quarts RELIANT per 100 gallons of water	Apply spray to thoroughly wet all foliage.

* Lavender applications.

CONIFERS

Apply RELIANT® in conjunction with good cultural management practices for effective control of root rot (Phytophthora spp.) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to CONIFERS that are moisture or heat stressed.

Disease	Application Method	Rate	Application Program
Phytophthora spp.	Foliar spray	2 to 4 tsp. RELIANT per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	2 to 4 tsp. RELIANT per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	2 tsp. RELIANT per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray apply any time active growth occurs	16 fl. oz. RELIANT® + 32 fl.oz. of water + 0.5 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker)	Injection	20 ml per tree of a 16 fl. oz. RELIANT® + 32 fl.oz. of water + .05 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant solution.	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

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TURF AND/OR HOME LAWNS

Use RELIANT® for the effective control of Rhizoctonia, Pythium and damping-off diseases, and for suppression of Anthracnose of turf or lawngrasses. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. RELIANT per 1000 sq. ft.	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Application intervals: 14 – 21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.
Suppression of Anthracnose	Foliar spray	5 to 10 fl. oz. RELIANT per 1000 sq. ft.	Apply indicated quantity of RELIANT® in 5 gallons of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Apply prior to onset of disease. Apply every 7 to 14 days in a fungicide rotational program. Do not irrigate or mow treated areas until spray has completely dried.
Rhizoctonia	Foliar spray	5 to 10 fl. oz. RELIANT per 1000 sq. ft.	Apply prior to onset of disease. Apply every 7 to 14 days.

Do not graze animals on treated areas of turf lawn. Do not feed treated turf lawn clippings to poultry or livestock.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE:

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants. If transfer to another container becomes necessary, ensure that the container is clearly labeled, the container is a type suitable for the product, and is clean and free of other materials.

CONTAINER DISPOSAL.

Non Refillable container. Do use or refill this container. Offer for recycling if available. If partly filled: Call your local solid waste agency or 1-800-CLEANUP (1-800-253-2687) for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY AND DISCLAIMER

To the extent permitted by applicable law, all conditions and warranties and statutory or other rights of action which buyer or any other user may have against Quest Products LLC. are hereby excluded. To the extent permitted by applicable law, Quest Products LLC. hereby gives notice to buyer and other users that it will not accept responsibility for any indirect or consequential loss arising from reliance on product information provided by Quest Products LLC. or on its behalf unless it is established that such information or advice was provided negligently and that the product has been used strictly as directed. To the extent permitted by applicable law, Quest Products LLC's liability shall in all circumstances be limited to replacement of product or a refund of the purchase price there of.

Master label Encompassing Sub-label A – Agricultural and Commercial Uses
Sub-label B – Residential Uses

Reliant ® Systemic Fungicide

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DESEASES INCLUDING BALCK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE LETTUCE AND ONION, ANTHRACNOSE IN MANGO,ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT,LEATHERROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA AND FUSARIUM IN CONIFERS,PYTHIUM IN TURF AND PHYTOPHTHORA AND PYHTIUMDISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS: Mono-and di-potassium salts of Phosphorous Acid	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

Contains 5.17 lbs. per gallon of the active ingredients, mono-and di-potassium salts of Phosphorous acid
Equivalent to 3.35 lbs. of Phosphorous Acid/gallon

KEEP OUT OF REACH OF CHILDREN

CAUTION

Notification Accepted

Date: MAY 17 2012

Reviewer: C. Walsh

EPA Reg. No. 83416-1
EPA Est.No. 72499-GA-001
EPA Est.No. 71975-WA-001
EPA Est.No. 89083-FL-001

Manufactured for:

Quest Products LLC.

11712 230th Street

Linwood, Kansas 66052

Phone 785-542-2577

Net Contents: 1Qt, 1 Gallon, 2.5 Gallon, 20, Gallon, 55 Gallon, 250 gallon, Bulk

Agricultural Use

Reliant®

Systemic Fungicide

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSCAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS:	
Mono- and di-potassium salts of Phosphorous Acid*	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid. Equivalent to 3.35 lbs Phosphorous Acid/gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

CONSULT PAGE 2 OF THIS BOOKLET FOR FIRST AID & PRECAUTIONARY STATEMENTS

Batch No.:

Date of Manufacture:

EPA Reg. No. 83416-1
EPA Est. No. 72499-GA-001
EPA Est. No. 71975-WA-001
EPA Est. No. 89083-FL-001

NET CONTENTS:

- ☐ 1 Quart
- ☐ 4x 1 Gallon
- ☐ 2x 2.5 Gallons
- ☐ 30 Gallons
- ☐ 55 Gallons
- ☐ 250 Gallons

Quest Products
Finding New Ways to Improve the Treatment of Trees and Plants.

Quest Products LLC.
11712 230th St. * Linwood KS 66052
Phone: 785-542-2577
Fax: 785-542-2531
www.QuestProducts.us

Agricultural Use

FIRST AID	
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. Hotline Number: National Poison Control, 1-800-222-1222	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if swallowed, absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist or vapors. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Wear the appropriate Personal Protective Equipment (PPE).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators, mixers, loaders, and other handlers must wear:

- protective eyewear
- long pants and long-sleeved shirt
- waterproof gloves
- shoes plus socks

Follow manufacturer's instructions for maintaining/cleaning personal protective equipment (PPE). If no such instructions for washables, use hot water and detergent. Keep and wash PPE separately from other laundry.

When handlers use closed systems, aircraft or enclosed cabs in a manner that meets the requirements listed in the worker protection standard (WPS) for agricultural pesticides (40 CFR 170.240 (d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before drinking, eating, chewing gum, using tobacco or using the toilet.
- Remove PPE clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Use: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the state or tribal agency responsible for pesticide registration.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, CFR 40 part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours, unless wearing the appropriate PPE.

PPE required for early entry to treated areas that are permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soils or water, is: coveralls worn over short-sleeved shirt and short pants, waterproof gloves, shoes plus socks and protective eyewear.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements of this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Do not enter treated areas without protective clothing until sprays have dried.

CHEMIGATION

Use of RELIANT® Systemic Fungicide through chemigation is not permitted in California.

Apply this product only through center pivot, solid set or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

SPRINKLER AND DRIP (TRICKLE) IRRIGATION SYSTEMS:

The irrigation system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

80039

(Sprinkler Chemigation Only): Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply RELIANT® Systemic Fungicide continuously for the duration of the water application. After treatment with RELIANT® Systemic Fungicide has been completed, avoid further irrigation of the treated area until foliage is dry or for 24 to 48 hours.

GENERAL APPLICATION INSTRUCTIONS

Apply RELIANT® Systemic Fungicide by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip.

For foliar sprays, apply RELIANT® Systemic Fungicide with sufficient water volumes for adequate coverage of foliage, according to crop and growth stage. To ensure good coverage, spray to wetness, but avoid run-off.

When using RELIANT® Systemic Fungicide with Pentra-Bark™ adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applications.

MIXING INSTRUCTIONS

1. Fill the spray tank with 1/4 – 1/2 of the volume of water required before adding RELIANT® Systemic Fungicide.
2. Add RELIANT® Systemic Fungicide slowly to the tank and agitate by mechanical or hydraulic means.
3. Continue agitating as tank fills with water to the desired volume.
4. Maintain agitation during application.

COMPATIBILITY

RELIANT® Systemic Fungicide is compatible with most products used in agriculture. However, individual crop sensitivity to these mixtures may vary. Mixtures of RELIANT® Systemic Fungicide with some foliar fertilizers and copper products are not always compatible or cause phytotoxicity to some plants. If these combinations or others have not been used previously, do not tank mix without first testing the compatibility of the tank mix. Do not apply tank mixture without first assessing its safety to the crop (phytotoxicity). Tank mix RELIANT® Systemic Fungicide with fertilizers only if crop safety has been established and the RELIANT® Systemic Fungicide use rates are followed.

Due to RELIANT® Systemic Fungicides acidic nature, do not use acidifying-type compatibility agents. If spray adjuvants are used test them before use to confirm compatibility with RELIANT® Systemic Fungicide.

Use a jar test to confirm compatibility with RELIANT® Systemic Fungicide. In a clean jar using the same water source that is normally used to fill spray tank, add the same proportions of each product and the appropriate quantity of water and mix thoroughly. Let stand for 3 minutes. If mixture remains in solution or is remixed readily the tank mix is compatible.

Spray the solution that results from the above compatibility test onto a few plants and inspect for visual effects of phytotoxicity (leaf burn) 3 to 7 days later.

AGRICULTURAL APPLICATIONS

APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE*

Use RELIANT® Systemic Fungicide for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot and scab (Venturia inaequalis)	Foliar spray	1/2 gallon per acre in 25 – 250 gallons water per acre	First application at open cluster. Last application at fifth cover or fruit at 2" to 2 1/2" diameter. Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply RELIANT® Systemic Fungicide immediately. NOTE: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
	Basal bark spray at bud swell or silver tip stage of growth in early spring	62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ on the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (treatment generally lasts 8 – 12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)

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APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE* (continued)

Disease	Application Method	Rate	Application Program
Root and collar rot (Phytophthora cactorum) Fire Blight (Erwinia amylovora)	Foliar spray	Apply at 1 1/4 to 2 1/2 quarts per acre with a maximum of 250 gallons water per acre.	One to two month intervals between treatments. Under high disease pressure use higher application rate and shorter spray interval. Ensure thorough coverage.
	Basal bark spray treat in spring and fall for best results	62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8 – 12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control).

*Not for use in California except basal bark spray on apples and crab apples.

ASPARAGUS*

Use RELIANT® Systemic Fungicide for effective control of crown rot & asparagus spear slime disease in asparagus.

Disease	Application Method	Rate	Application Program
Crown rot & Asparagus spear slime (Phytophthora spp.)	Foliar	1 1/4 quarts per acre in 25 gallons water to 2 1/2 quarts per acre in 250 gallons water	Apply to ferns that have 2 to 3 inches of new growth. Do not apply to ferns that are starting to die down (senesce). Established plantings, start applications when conditions are favorable to disease (cool wet conditions). Ensure thorough coverage.

*Not for use in California.

AVOCADOS

Use RELIANT® Systemic Fungicide for effective control of root rot, trunk cankers and downy mildew disease in avocado.

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora cinnamomi)	Tree injection	Skeletal trees 1st year: 1/4 fl. oz. undiluted product per yard of canopy diameter. Other situations: 3/4 teaspoon diluted with 1/2 fl. oz. of water per yard of canopy diameter.	Inject trees at spring flush maturity. Repeat treatment in February or March. Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Do not prune back trees before injection process as burning of new growth may occur. Do not inject trees in winter months. Do not cut back the canopy of injected trees. Do not add any material, other than water, to RELIANT® Systemic Fungicide by trunk injection. Do not inject more liquid in a lesser number of syringes than directed.
	Foliar spray	2 tsp. per gallon of water, 1/2 – 2/3 gallon of product per acre	Spray to runoff at 2 – 2 1/2 gallons of spray solution per adult tree. Start applications in spring, up to 4 applications a year at two-month intervals. Ensure thorough coverage.

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AVOCADOS (continued)

Disease	Application Method	Rate	Application Program
Canker (Phytophthora citricola)	Trunk spray	1 1/4 to 2 1/2 quarts mixed with 5 gallons of water with 6 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply to trunk lesions using sufficient spray volume to completely wet the trunk and lesions. If lesions absent, apply to trunk from soil level to two feet up trunk. If lesions present use higher rate.
Downy mildew	Foliar spray	3 3/4 pints in 500 gallons water	Spray to runoff, as required for disease control.

BERRIES*

Use RELIANT® Systemic Fungicide for effective control of root rot in bush and cane berries such as, but not limited to, blueberries, blackberries, loganberries, and raspberries (red, black, hybrids/cultivars).

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora spp.)	Foliar spray	1 – 3 quarts per 100 gallons of water per acre. Ensure foliage is completely wet.	New plantings: start application when new growth is 2 to 3 inches long. Established plantings start applications when cool wet conditions occur which favor disease. West of Rocky Mountains: Autumn applications, apply when conditions favor disease, repeat in 4 weeks. Spring applications; first application after bud break and repeat in 4 weeks. East of Rocky Mountains: First application spring post bud break (2 to 3 inches new growth) and repeat at 50 to 60 day intervals. Do not exceed 4 applications per season. For blueberries – First application in spring at pink bud and then on a regular schedule of application at two to three intervals.

*Not for use in California.

BRASSICAS

Use RELIANT® Systemic Fungicide for effective control of downy mildew in brassicas such as, but not limited to, broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccolo, collards, Chinese cabbage, Chinese mustard cabbage, kale, kohlrabi, mizuna, mustard greens, mustard spinach and rape greens.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora parasitica)	Foliar spray	1 1/4 quarts per acre in 25 gallons of water per acre to 2 1/2 quarts per acre in 250 gallons of water per acre. California: 1 1/4 quarts per acre in 100 gallons of water to 2 1/2 quarts per acre in 185 gallons of water.	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases.

CEREAL GRAINS*

Apply RELIANT® Systemic Fungicide to crops such as, but not limited to, field corn, ornamental corn, sweet corn, Indian corn, wheat, rye, barley, oats, triticale, and sorghum (milo). Use RELIANT® SYSTEMIC FUNGICIDE for effective control of damping-off and root rot diseases.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Corn: Apply at 14-day intervals from 4-leaf stage, as needed. Assure good coverage. Other grains: Apply at 14 – 21 day intervals, as needed. Assure good coverage.

*Not for use in California.

CITRUS – Mature trees

Use RELIANT® Systemic Fungicide for effective control of root rot and collar rot diseases in citrus.

Disease	Application Method	Rate	Application Program
Brown rot and foot rot Phytophthora spp.	Foliar spray	2 1/2 quarts per acre in a maximum of 250 gallons of water	**When conditions favor disease.** Spray trees to run off ensure even coverage. Do not apply at high temperatures (above 95°F) particularly if humidity is low or to moisture-stressed trees.
Root rot and collar rot (Phytophthora spp. nicotianae and Phytophthora citrophthora)	Trunk spray	Mix 1 1/4 to 2 1/2 quarts in a minimum of 5 gallons of water.	Spray trunk lesions with enough spray volume to ensure lesions are completely wet. When disease levels are high, use higher rate.

COCONUTS

Use RELIANT® Systemic Fungicide for effective control of bud rot and nut fall in coconuts.

Disease	Application Method	Rate	Application Program
Bud rot – Nut fall (Phytophthora palmivora)	Injection	Between 2 tsp. and 1 fl. oz. per tree	Dilute RELIANT® Systemic Fungicide with water to give final injection volume of 1 fl. oz. to 2 fl. oz. of water and RELIANT® Systemic Fungicide. Inject into the trunk or root system.

CUCURBITS

Use RELIANT® Systemic Fungicide for effective control of sudden wilt, gummy stem blight, and downy mildew diseases in cucurbits grown in field situations such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp. balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (Phytophthora spp.)	Foliar spray	1 – 3 quarts per 100 gallons Apply 1 1/4 quarts per acre in 40 gallons of water. (CA only)	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (Mycosphaerella melonis)			Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Downy mildew (Pseudoperonospora cubensis)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per season.

CUCURBITS, TANK MIXTURES*

For the effective control of downy mildew diseases, tank-mix RELIANT® Systemic Fungicide with a mancozeb-containing fungicide and apply to cucurbits.

Product	Disease	Rate Per Acre	Application Program
RELIANT® Systemic Fungicide + mancozeb-containing fungicide	Downy mildew	Light to medium foliage cover: Apply 1 1/4 – 2 quarts of product per acre. Heavy foliage cover: Apply 3 quarts of product per acre + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products. For best results apply RELIANT® Systemic Fungicide as a tank mix with protectant fungicides such as mancozeb, copper oxychloride, etc., to ensure both pre- and post-infection activity.

*Not for use in California.

FRUITING VEGETABLES*

Use RELIANT® Systemic Fungicide for effective control of damping-off, root rot, and gummy stem blight diseases in eggplant, tomatoes, tomatillos, and peppers such as, but not limited to, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	Rate	Application Program
Eggplant: Pythium and Phytophthora spp., and Gummy stem blight (Mycosphaerella melonis)	Foliar spray	Apply 1 1/4 quarts per acre in 40 gallons of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season. Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Peppers: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Tomatoes/Tomatillos: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water California: 1 1/4 quarts per acre in 90 gallons of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.

*Use in California limited to tomatoes and tomatillos.

GRAPES

Use RELIANT® Systemic Fungicide for effective control of downy mildew diseases in grapes.

Disease	Application Method	Rate	Application Program
Downy mildew (Plasmopara viticola)	Foliar spray	Early season small canopy, 1 1/4 quarts per acre in 100 gallons water Late season/large canopy, 2 quarts per acre in 150 gallons water to 2 1/2 quarts per acre in 200 gallons water	It is essential that the rate of RELIANT® Systemic Fungicide be adjusted to the vine-row volume, i.e., the volume of vine foliage per acre. Spray timing is critical. Apply RELIANT® Systemic Fungicide at times of high disease risk, especially between the time that conditions are conducive to downy mildew infection and the appearance of oil spots. Ensure spray coverage is adequate and that the appropriate rate of RELIANT® Systemic Fungicide is applied to match vine growth, particularly from mid- season onwards, and especially where grapes are grown on root stock grown on root stock.

GRAPES, TANK MIXTURES*

For the effective control of downy mildew diseases, tank-mix RELIANT® SYSTEMIC FUNGICIDE with a mancozeb-containing fungicide and apply to grapes.

Product	Disease	Rate Per Acre	Application Program
RELIANT® SYSTEMIC FUNGICIDE + mancozeb-containing fungicide	Downy mildew	Early season small canopy, 1 1/4 quarts per acre in 100 gallons water Late season/large canopy, 2 quarts per acre in 150 gallons water to 2 1/2 quarts per acre in 200 gallons water + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products. For best results apply RELIANT® SYSTEMIC FUNGICIDE as a tank mix with protectant fungicides such as mancozeb, copper oxychloride, etc., to ensure both pre- and post-infection activity.

*Not for use in California.

HOPS*

Use RELIANT® Systemic for effective control of downy mildew in hops.

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	1 – 3 quarts per 100 gallons of water per acre	When conditions favor disease, apply when A. Shoots are 1/2 to 1 foot long. B. Post-training when vines are 6 feet high. C. 21 days post-application (B) D. During bloom

*Not for use in California.

LEAFY VEGETABLES*

Use RELIANT® Systemic Fungicide for effective control of downy mildew in leafy vegetables such as, but not limited to, amaranth, arugula, cardoon, celery, chervil, corn salad, endive, fennel, lettuce, parsley, radicchio, rhubarb, spinach, and Swiss chard. Excludes Brassica vegetables.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	1/2 gallon per acre in 40 gallons water	Ensure spray coverage is adequate to wet the whole plant. During warm, wet conditions repeat application at 7 to 10 day intervals, if needed.

*Use in California limited to lettuce.

LEGUMES*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto bean, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

MANGOS

Use RELIANT® Systemic Fungicide for effective control of anthracnose in mangos.

Disease	Application Method	Rate	Application Program
Anthracnose (Colletotrichum gloeosporoides)	Foliar spray	2 tsp. per gallon of water	Spray tree every 14 days during blossom period, then monthly until harvest. Spray to the point of run-off.

NONGRASS ANIMAL FEED*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in forage crops such as, but not limited to, alfalfa, clover, and vetch.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

OKRA*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in okra.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

ONIONS

Use RELIANT® Systemic Fungicide for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora destructor)	Foliar spray	2 quarts per acre in 100 gallons water per acre	As a regular preventative control program or when disease first appears.

ONIONS, TANK MIXTURES*

For the effective control of downy mildew diseases, tank-mix RELIANT® Systemic Fungicide with a mancozeb-containing fungicide and apply to onions, garlic and shallots.

Disease	Application Method	Rate	Application Program
RELIANT® Systemic Fungicide + mancozeb-containing fungicide	Downy mildew	2 quarts per acre in 100 gallons water per acre + Label rate of mancozeb	Apply as a foliar spray the indicated quantity and dilution rates with water of both products. For best results, apply RELIANT® Systemic Fungicide as a tank mix with protectant fungicides such as mancozeb to ensure both pre- and post-infection activity.

*Not for use in California.

PEANUTS*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot disease in peanuts.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals, as necessary. Ensure thorough coverage.

*Not for use in California.

PINEAPPLES

Use RELIANT® Systemic Fungicide for effective control of Phytophthora root and heart rot diseases in pineapples.

Disease	Application Method	Rate	Application Program
Phytophthora root and heart rot (Phytophthora cinnamomi and parasitica spp.)	Foliar spray	2 1/2 quarts in 25 – 50 gallons water per acre	Apply to tops, 14 days prior to harvest of planting material.
	Pre-plant dip	1 1/4 quarts in 100 gallons water	Will treat enough slips to plant one acre.
	Foliar spray	2 quarts in 100 gallons water	Established plantings when conditions favor disease. Apply at 90 day intervals. Ensure thorough coverage of plants.

POTATOES, POST-HARVEST*

Use RELIANT® Systemic Fungicide only on russet-skinned potatoes intended for processing for suppression of late blight (Phytophthora infestans) and pink rot (Phytophthora erythroseptica). Apply 16.5 fl. oz. of RELIANT® Systemic Fungicide per ton of tubers in one half gallon of water as a mist spray. For the best control, be sure the tubers are completely and evenly covered.

Disease	Application Method	Rate	Application Program
Potatoes, Post-harvest: Late blight (Phytophthora infestans) and pink rot (Phytophthora erythroseptica)	Spray on tubers	16.5 fl. oz. in 1/2 gallon of water/ton of tubers	Apply only to russet-skinned potatoes intended for processing. For best results, be sure tubers are thoroughly and evenly covered.

*Not for use in California.

ROOT AND TUBER VEGETABLES*

Use RELIANT® Systemic Fungicide for effective control of foliar and root rot in ginseng, damping-off and root rot diseases in carrots, and late blight disease and storage diseases such as pink rot and pythium leak in potatoes, sweet potatoes, and yams.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (Phytophthora cactorum)	Foliar spray	2 1/2 quarts in 100 gallons of water	In cool wet conditions that favor Phytophthora. Apply at 7 day intervals. Do not exceed a total of 8 applications per season.
Carrots: Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Pink rot and Pythium leak (Phytophthora erythroseptica and Pythium spp.)	In-furrow spray	2 – 5 quarts per acre in 10 gallons water	Apply in a band spray directly over top of potato seed just before row is closed.
Potatoes, Sweet Potatoes, Yams: Late blight, Pink rot and Pythium leak (Phytophthora infestans, Phytophthora erythroseptica and Pythium spp.)	Foliar spray	1 1/4 quarts per acre in 90 – 375 gallons water per acre	Apply at 5 to 14 day intervals subject to disease incidence.

*Use in California limited to potatoes, sweet potatoes, and yams.

STONE FRUIT*

Use RELIANT® Systemic Fungicide for effective control of root, collar rot and almond pruning wound canker disease in stone fruit such as, but not limited to, sweet and tart cherries, peaches, plums, and fresh prunes.

Disease	Application Method	Rate	Application Program
Root and collar rot (Phytophthora spp.)	Foliar spray	2 1/2 quarts per acre in 250 gallons water	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.
	Basal bark spray Apply in spring and fall.	62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	
Almond pruning – wound cankers (Phytophthora syringae)	Paint or spray	1 1/4 – 2 1/2 quarts in 100 gallons water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet. In high disease situations use higher rate.

*Not for use in California.

STRAWBERRIES

Use RELIANT® Systemic Fungicide for effective control of leather rot, red stele and Phytophthora disease in strawberries.

Disease	Application Method	Rate	Application Program
Red stele (Phytophthora fragariae)	Pre-planting dip	1 1/4 quarts in 100 gallons water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties.
	Foliar spray	1 – 3 quarts in 50 – 100 gallons water per acre 1 1/4 quarts per acre in 90 gallons of water to 2 1/2 quarts per acre in 200 gallons water. (CA only)	Annual crops, first treatment 14 to 21 days post planting, repeat at 1 – 2 month intervals when disease is evident. Perennial crops, first treatment during spring growth flush, repeat at 1 – 2 month intervals when disease is evident. For susceptible varieties use higher rates and shorter spray intervals.
Leather rot (Phytophthora cactorum)	Foliar spray	1 – 3 quarts in 50 – 100 gallons water per acre 1 1/4 quarts per acre in 90 gallons of water to 2 1/2 quarts per acre in 200 gallons water (CA only)	Apply at 10% bloom and early fruit set, then at one to two week intervals as required for disease control. In high disease situations use higher rates and shorter spray intervals.

TREE NUTS*

Use RELIANT® Systemic Fungicide for effective control of root and collar rot, and almond pruning-wound canker disease in tree nuts such as, but not limited to, almonds, beech nuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapin, hazelnuts, hickory nuts, macadamia nuts, pecans, and walnuts.

Disease	Application Method	Rate	Application Program
Other than macadamia nuts: Root and collar rot (Phytophthora spp.)	Foliar	1 1/4 quarts per acre in 125 gallons water	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest
Other than macadamia nuts: Almond pruning – wound canker (Phytophthora syringae)	Paint or spray	2 1/2 quarts in 100 gallons water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet.
Macadamia nuts: Raceme blight (Phytophthora spp.)	Foliar spray	3 3/4 quarts per acre in 250 gallons of water	Apply when disease is first seen and reapply at 3 week intervals. Spray to the point of run-off.

*Not for use in California.

SEED TREATMENT APPLICATIONS*

Use RELIANT® Systemic Fungicide for effective control of Phytophthora and Pythium diseases on agricultural crop seeds from crops listed elsewhere on this label.

Do not use treated seed for food, feed, or oil. Dye used to color treated seed must be an EPA approved dye [refer to 40 CFR 153-155 (c)]. Seed treatment on agricultural establishment in hopper-box, planter box, or other seed treatment application at or immediately before planting is within the scope of WPS, while commercial treatment of seeds is not within the scope of WPS.

Disease	Application Method	Rate
Phytophthora, Pythium and Fusarium spp.	Can be applied at-planting or in commercial seed treatment operations.	8 – 24 fl. oz. RELIANT® Systemic Fungicide per 100 lbs. of seed or 4 – 10 quarts RELIANT® Systemic Fungicide per ton of seed, depending on the size of the seeds to be treated.

*Not for use in California.

GRASS GROWN FOR SEED PRODUCTION*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in turf grasses such as, but not limited to, Bermuda, fescue, bent, blue, rye, zoysia, buffalo and poa annua.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	1 1/2 quarts per acre in 25 gallons of water to 2 quarts per acre in 250 gallons of water	Apply at 14 – 21 day intervals, as necessary. Ensure thorough coverage.

*Not for use in California.

LANDSCAPE, GOLF COURSE, NURSERY, FORESTRY, AND PARK APPLICATIONS*

Use RELIANT® Systemic Fungicide for effective control of Phytophthora and Pythium and other diseases associated with Stem and Canker Blight (Sudden Oak Death, Phytophthora ramorum), Beech Decline, and general tree decline syndromes in landscapes, nurseries, golf courses, forests, and parks. Apply RELIANT® Systemic Fungicide to trees such as, but not limited to, Beech, Cedar, Chestnut, Crab Apple, Dogwood, Elm, Fir, Hawthorne, Juniper, Linden, Pine, Oaks (Coastal, Live, Shreve, Black, Canyon), Ornamental Pear, Pyracantha, Sweet Birch, Sweet Gum, Sycamore, White Pine, White Cedar, and Willow.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp., and Phytophthora ramorum	Injection	11 fl. oz. per 21 fl. oz. of water OR 1/2 tsp. per tsp. of water	Drill holes 3/16 inch (5 mm) in diameter into live sapwood (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection per yard of diameter of canopy measured at the drip- line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet®, Sidewinder®, Ag-murf Gun®, Marley® Injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.
	Basal bark spray (all other tree species) Apply in spring and fall.	62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® SYSTEMIC FUNGICIDE and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. Treat in spring and fall for best results.

(continued on next page)

LANDSCAPE, GOLF COURSE, NURSERY, FORESTRY, AND PARK APPLICATIONS* (continued)

Disease	Application Method	Rate	Application Program
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray (pines) Apply anytime active growth is observed.	1 gallon of RELIANT® Systemic Fungicide + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 5 to 6 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker) and Gnomonia platani (Sycamore Anthracnose)	Injection	20 ml per tree of a 1 gallon RELIANT® Systemic Fungicide + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ solution	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or positive pressure hydraulic tree injection. Trees should be at least 10" diameter at breast height.
Apple black spot and scab (Venturia inaequalis)	Basal bark spray apply early spring at bud swell or silver tip stage of growth	62.4 fl. oz. + 62.4 fl. oz. of water + 3.2 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® SYSTEMIC FUNGICIDE and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8 – 12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.) Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices.
Fire blight	Foliar spray	1 1/4 quarts per 100 gallons of water	First application pre bloom. (bud swell or silver tip stage). Application intervals: 7 days until end of bloom period. Apply spray to thoroughly wet all foliage.

*Use in California limited to Oaks (Coastal, Live, Shreve, Black, Canyon), Tan Oaks, and other tree species that are host to P. ramorum. Applications limited to injection and basal bark spray of pines, basal bark spray of apples and crabapples, and injection of Sycamores for control of Sycamore anthracnose. Do not apply to any other tree species without consulting the list of P. ramorum host species listed at the following website: http://nature.berkeley.edu/comtf/index.html. For questions contact your local extension office.

ORNAMENTAL APPLICATIONS

Use RELIANT® Systemic Fungicide for effective control of Bacterial blight, Downy mildew, Phytophthora spp. and Pythium spp. diseases of Ornamentals in landscapes, nurseries, golf courses, parks, interiorscapes, and greenhouses. Apply RELIANT® SYSTEMIC FUNGICIDE to plants such as, but not limited to, Aglaonema, Anthurium, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, field, landscape, and mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or plant injury may occur. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid plant injury. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Bacterial blight (Xanthomonas campestris) pathovars: dieffenbachiae, fici hederae, and syngonii	Foliar spray	2 – 4 pints per 100 gallons of water OR 2 – 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 7 to 14 days. Repeat as required.
Downy mildew	Foliar spray	2-4 pints per 100 gallons water Or 2-4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp., Phytophthora ramorum, and Pythium spp.	Foliar spray	1 – 2 quarts per 100 gallons of water OR 2 – 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	6 1/4 – 12 3/4 fl. oz. per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
	Soil incorporation	1 – 2 pints per cubic yard of soil	Just prior to potting, mix 1 to 2 pts. of RELIANT® Systemic Fungicide into each cubic yard of growing media. If disease pressure is high, apply foliar spray or soil drench.
	Bare rooted dipping of transplants	2 pints per 100 gallons of water OR 2 tsp. per gallon	Immediately before transplanting, dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.

BEDDING PLANTS

Use RELIANT® Systemic Fungicide for effective control of Downy mildew, Phytophthora spp. and Pythium spp. diseases of bedding plants grown in landscapes, nurseries and golf courses, parks, interiorscapes, and greenhouses. Apply RELIANT® Systemic Fungicide to plants such as, but not limited to, Ageratum, Algerian Ivy, Anthurium, Artemesia, Aster, Begonia, Baby's Breath, Caladium, Carnation, Chrysanthemum, Columbine, Coleus, Daisy, Delphinium, Easter Lily, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Lavender, Marigold, Petunia, Pansy, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Vinca, Verbena, and Zinnia.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	1 1/4 – 2 1/2 quarts per 100 gallons of water OR 1/2 – 1 1/8 fl. oz. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp. and Pythium spp.	Foliar spray	1 – 2 quarts per 100 gallons of water OR 2 – 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. NOTE: Do not apply more than 500 gallons of spray solution per acre.
	Soil drench	6 1/4 – 12 3/4 fl. oz. per 100 gallons of water	Apply each 25 gallons of solution to an area of 100 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
Phytophthora spp.*	Foliar spray	2 quarts per acre	Apply spray in 20 – 60 gallons per acre.
	Hand gun	2 quarts per 100 gallons of water	Apply spray to thoroughly wet all foliage.

*Lavender applications.

CONIFERS IN COMMERCIAL NURSERIES, PLANTATIONS AND FORESTS* (INCLUDING CHRISTMAS TREES)

Apply RELIANT® Systemic Fungicide in conjunction with good cultural management practices for effective control of root rot (Phytophthora spp.) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to conifers that are moisture or heat stressed.

Disease	Application Method	Rate	Application Program
Phytophthora	Foliar spray	1 – 2 quarts per 100 gallons of water OR 2 – 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1 – 2 quarts per 100 gallons of water OR 2 – 4 tsp. per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	1 quart per 100 gallons of water OR 2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray Apply any time active growth is observed.	1 gallon RELIANT® Systemic Fungicide + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line.
	Injection	20 ml per tree of a 1 gallon RELIANT® Systemic Fungicide + 2 gallons of water + 4 fl. oz. of Pentra-Bark™ solution	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

* Not for use in California except as an injection and/or basal bark spray on pines.
Do not graze livestock in treated areas of conifer nurseries or plantations. Do not feed forage from treated areas of plantations and or nurseries.

TURF

Use RELIANT® Systemic Fungicide for the effective control of Pythium and damping-off diseases of turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. per 1000 sq. ft.	Apply indicated quantity of product in 1 to 2 gallons of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Application intervals: 14 – 21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

TURF TANK MIXTURES

For the effective control of summer stress complex caused by a complex of Rhizoctonia and Pythium diseases, tank-mix RELIANT® Systemic Fungicide with Fore® WP [or Protect T/O or mancozeb-containing] fungicide and apply to turf grasses on golf courses, parks, commercial landscapes, commercial turf production, and sod farms.

Product	Disease	Rate per 1000 sq. ft.	Application Program
RELIANT® Systemic Fungicide + FORE® WP** [or Protect T/O or mancozeb-containing fungicide]	Summer Stress Complex (Rhizoctonia and Pythium spp.)	5 to 10 fl. oz. RELIANT® Systemic Fungicide + 4 to 8 fl. oz. FORE® WP** [or Protect T/O or mancozeb-containing fungicide]	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. as a foliar spray. Start as a preventive spray at two-week intervals and repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

**Registered trademark of Rohm & Haas.

Do not graze animals on treated areas of turf. Do not feed treated turf clippings to poultry or livestock.

STORAGE and DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE:

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants. If transfer to another container becomes necessary, ensure that the container is clearly labeled, the container is a type suitable for the product, and is clean and free of other materials.

PESTICIDE DISPOSAL:

Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING:

Non refillable container. Do not reuse or refill this container.

Containers with a capacity of less than 5 gallons: Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Triple rinse as follows: empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure 2 more times.

Containers with a capacity of greater than 5 gallons: Triple rinse as follows: empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip the container on its side and roll it back and forth, insuring at least one complete44 revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto the other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure 2 more times. Offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, keep out of smoke.

WARRANTY AND DISCLAIMER

To the extent permitted by applicable law, all conditions and warranties and statutory or other rights of action which buyer or any other user may have against Quest Products Corp. are hereby excluded. To the extent permitted by applicable law, Quest Products Corp. hereby gives notice to buyer and other users that it will not accept responsibility for any indirect or consequential loss arising from reliance on product information provided by Quest Products Corp. or on its behalf unless it is established that such information or advice was provided negligently and that the product has been used strictly as directed. To the extent permitted by applicable law, Quest Products Corp.'s liability shall in all circumstances be limited to replacement of product or a refund of the purchase price thereof.

Residential Use

Reliant®

Systemic Fungicide

SYSTEMIC FUNGICIDE FOR THE EFFECTIVE CONTROL OF VARIOUS PLANT DISEASES INCLUDING BLACK SPOT OR SCAB IN APPLE, ROOT ROT IN AVOCADO, BUD ROT AND NUT FALL IN COCONUT, ROOT ROT IN CITRUS AND CUCURBITS, DOWNY MILDEW IN CUCURBITS, GRAPE, LETTUCE, AND ONION, ANTHRACNOSE IN MANGO, ROOT AND HEART ROT IN PINEAPPLE, LATE BLIGHT IN POTATO, ROOT AND COLLAR ROT IN STONEFRUIT, LEATHER ROT AND PHYTOPHTHORA DISEASES IN STRAWBERRY, LATE BLIGHT IN TOMATO, DOWNY MILDEW, PHYTOPHTHORA & PYTHIUM IN ORNAMENTALS, INTERIORSCAPES & BEDDING PLANTS, PHYTOPHTHORA AND FUSARIUM IN CONIFERS, PYTHIUM IN TURF, AND PHYTOPHTHORA AND PYTHIUM DISEASES ASSOCIATED WITH STEM AND CANKER BLIGHT (SUDDEN OAK DEATH) AND GENERAL BEECH DECLINE.

ACTIVE INGREDIENTS:	
Mono- and di-potassium salts of Phosphorous Acid*	45.8%
OTHER INGREDIENTS:	54.2%
TOTAL	100.0%

*Contains 5.17 lbs/gallon of the active ingredients, mono- and di-potassium salts of Phosphorous Acid. Equivalent to 3.35 lbs Phosphorous Acid/gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

CONSULT PAGE 2 OF THIS BOOKLET FOR FIRST AID & PRECAUTIONARY STATEMENTS

Batch No.:

Date of Manufacture:

EPA Reg. No. 83416-1
EPA Est. No. 72499-GA-001
EPA Est. No. 71975-WA-001
EPA Est. No. 89083-FL-001

NET CONTENTS:

- ☐ 1 Quart
- ☐ 4x 1 Gallon
- ☐ 2x 2.5 Gallons
- ☐ 30 Gallons
- ☐ 55 Gallons
- ☐ 250 Gallons

Quest Products
Finding New Ways to Improve the Treatment of Trees and Plants.

Quest Products LLC.
11712 230th St. • Linwood KS 66052
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Residential Use

FIRST AID	
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. Hotline Number: National Poison Control, 1-800-222-1222	

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if swallowed, absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist or vapors. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse. Wear the appropriate Personal Protective Equipment (PPE).

ENVIRONMENTAL HAZARDS

For Terrestrial Use: To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying the product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treated area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product. For use only in home gardens, on home lawns, and on home ornamentals and related home plants.

When using RELIANT® Systemic Fungicide with Pentra-Bark™ adhere to all applicable label directions. Only use Pentra-Bark™ with basal bark or tree injection applications.

GENERAL APPLICATION INSTRUCTIONS

Apply RELIANT® Systemic Fungicide by various application methods, including foliar spray, soil drench, soil incorporation, basal bark application and bare root dip. For foliar sprays, apply RELIANT® Systemic Fungicide with sufficient water volumes for adequate coverage of foliage, according to plant type and growth stage. To ensure good coverage, spray to wetness, but avoid run-off.

When applying RELIANT® Systemic Fungicide to plant species for the first time, spray a limited number of plants first and wait for 3-7 days. Then check for leaf burn (phytotoxicity).

MIXING INSTRUCTIONS

1. Fill the spray tank with 1/4 – 1/2 of the volume of water required before adding RELIANT® Systemic Fungicide.
2. Add RELIANT® Systemic Fungicide slowly to the tank and agitate.
3. Fill tank with balance of water to the desired volume.
4. Agitate during application.

Conversion Table

1/8 fl. oz.	=	3/4 teaspoon (tsp.)		
1/4 fl. oz.	=	1 1/2 tsp.		
1/3 fl. oz.	=	2 tsp.		
1/2 fl. oz.	=	3 tsp.		
2/3 fl. oz.	=	4 tsp.		
3/4 fl. oz.	=	4 1/2 tsp.		
1 fl. oz.	=	2 tablespoons (Tbs.)	=	6 tsp.

CITRUS, FRUIT, NUT AND VEGETABLE APPLICATIONS

APPLES, CRAB APPLES, LOQUATS, PEARS & QUINCE*

Use RELIANT® Systemic Fungicide for effective control of black spot, root and collar rot and fire blight in apples, crab apples, loquats, pears, and quinces.

Disease	Application Method	Rate	Application Program
Apple black spot and scab (Venturia inaequalis)	Foliar spray	1/2 fl. oz. per gallon of water	First application at open cluster. Last application at fifth cover or fruit at 2" to 2 1/2" diameter. Total of 10 applications at 10 to 12 day intervals. When conditions are conducive to a black spot outbreak, apply RELIANT® Systemic Fungicide immediately. NOTE: After 4 or 5 consecutive applications some yellowing of extension growth may be observed. If yellowing occurs use another fungicide until yellowing of leaves disappears.
	Basal bark spray apply early spring at bud swell or at silver tip stage of growth	16 fl. oz. + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present (treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control). Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices.
Root and collar rot (Phytophthora cactorum) Fire Blight (Erwinia amylovora)	Foliar spray	Apply 1/2 – 1 teaspoon per gallon of water	One to two month intervals between treatments. Under high disease pressure use higher application rate and shorter spray interval. Ensure thorough coverage.
	Basal bark spray apply spring and fall for best results	16 fl. oz. + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)

*Not for use in California except as basal bark spray on apples and crab apples.

ASPARAGUS*

Use RELIANT® Systemic Fungicide for effective control of crown rot & asparagus spear slime disease in asparagus crops.

Disease	Application Method	Rate	Application Program
Crown rot & Asparagus spear slime (Phytophthora spp.)	Foliar	1/3 fl. oz. per gallon of water	Apply to ferns that have 2 to 3 inches of new growth. Do not apply to ferns that are starting to die down (senesce). Established plantings, start applications when conditions are favorable to disease (cool wet conditions). Ensure thorough coverage.

*Not for use in California.

AVOCADOS

Use RELIANT® Systemic Fungicide for effective control of root rot, trunk cankers and downy mildew disease in Avocado.

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora cinnamomi)	Tree injection	Skeletal trees 1st year: 1/4 fl. oz. undiluted product per yard of canopy diameter. Other situations: 1/8 fl. oz. diluted with 1/2 fl. oz. of water per yard of canopy diameter	Inject trees at spring flush maturity. Repeat treatment in February or March. Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Do not prune back trees before injection process as burning of new growth may occur. Do not inject trees in winter months. Do not cut back the canopy of injected trees. Do not add any material, other than water, to RELIANT® Systemic Fungicide by trunk injection. Do not inject more liquid in a lesser number of syringes than directed.
	Foliar spray	1/3 fl. oz. per gallon of water	Spray to runoff at 2 – 2 1/2 gallons of spray solution per adult tree. Start applications in spring, up to 4 applications a year at two-month intervals. Ensure thorough coverage.
Canker (Phytophthora citricola)	Trunk spray	8 to 16 fl. oz. with one gallon of water with 1.2 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply to trunk lesions using sufficient spray volume to completely wet the trunk and lesions. If lesions absent, apply to trunk from soil level to two feet up trunk. If lesions present use higher rate.
Downy mildew	Foliar spray	3/4 teaspoon per gallon of water	Spray to runoff, as required for disease control.

BERRIES*

Use RELIANT® Systemic Fungicide for effective control of root rot in bush and cane berries such as, but not limited to, blueberries, blackberries, loganberries, and raspberries (red, black, hybrids/cultivars).

Disease	Application Method	Rate	Application Program
Root rot (Phytophthora spp.)	Foliar spray	2 – 6 tsp. per gallon of water. Ensure foliage is completely wet.	New plantings: start application when new growth is 2 to 3 inches long. Established plantings start applications when cool wet conditions occur which favor disease. West of Rocky Mountains: Autumn applications, apply when conditions favor disease, repeat in 4 weeks. Spring applications, first application after bud break and repeat in 4 weeks. East of Rocky Mountains: First application spring post bud break (2 to 3 inches new growth) and repeat at 50 to 60 day intervals. Do not exceed 4 applications per season. For blueberries – First application in spring at pink bud and then on a regular schedule of application at two to three intervals.

*Not for use in California.

BRASSICAS

Use RELIANT® Systemic Fungicide for effective control of downy mildew in brassicas such as, but not limited to, broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccolo, collards, Chinese cabbage, Chinese mustard cabbage, kale, kohlrabi, mizuna, mustard greens, mustard spinach and rape greens.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora parasitica)	Foliar spray	2 tsp. to 2 fl. oz. per gallon of water California: 1/3 to 1/2 fl. oz. per gallon of water	1 to 3 week intervals between applications when conditions favor disease development (cool, moist weather). Use higher rates and shorter intervals when disease pressure increases.

CITRUS - Mature trees

Use RELIANT® Systemic Fungicide for effective control of root rot and collar rot diseases in citrus.

Disease	Application Method	Rate	Application Program
Brown rot and foot rot Phytophthora spp.	Foliar spray	1 teaspoon per gallon of water	**When conditions favor disease.** Spray trees to run off ensure even coverage. Do not apply at high temperatures (above 95°F) particularly if humidity is low or to moisture-stressed trees.
Root rot and collar rot (Phytophthora spp. nicotianae and Phytophthora citrophthora)	Trunk spray	8 fl. oz. to 16 fl. oz. per gallon of water	Spray trunk lesions with enough spray volume to ensure lesions are completely wet. When disease levels are high use higher rate.

COCONUTS

Use RELIANT® Systemic Fungicide for effective control of bud rot and nut fall in coconuts

Disease	Application Method	Rate	Application Program
Bud rot – Nut fall (Phytophthora palmivora)	Injection	1/3 to 1 fl. oz. per tree	Dilute RELIANT® Systemic Fungicide with water to give final injection volume of 1 fl. oz. to 2 fl. oz. of water and RELIANT® Systemic Fungicide. Inject into the trunk or root system.

CUCURBITS

Use RELIANT® Systemic Fungicide for effective control of sudden wilt, gummy stem blight such as, but not limited to, cucumber, Chinese waxgourd, citron melon, gherkin rock melon, honeydew melon, pumpkin, zucchini, watermelon and squash (summer and winter), momordica spp. balsam apple, balsam pear, bitter melon, and Chinese cucumber.

Disease	Application Method	Rate	Application Program
Sudden wilt – Root and fruit rot (Phytophthora spp.)	Foliar spray	2 – 6 tsp. per gallon of water Apply 1 fl. oz. per gallon of water (CA only)	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season.
Gummy stem blight (Mycosphaerella melonis)			Apply when disease is evident. Continue applications at 21 day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Downy mildew (Pseudoperonospora cubensis)			Apply within 7 to 10 days of infection. Repeat as necessary. Do not exceed a total of 6 applications per season.

FRUITING VEGETABLES*

Use RELIANT® Systemic Fungicide for effective control of damping-off, root rot, and gummy stem blight diseases in eggplant, tomatoes, tomatillos, and peppers such as, but not limited to, bell, chili, cooking, pimento, and sweet.

Disease	Application Method	Rate	Application Program
Eggplant: Pythium and Phytophthora spp., and Gummy stem blight (Mycosphaerella melonis)	Foliar spray	Apply 1 fl. oz. per gallon of water.	Entire spray coverage of plant is required. Do not exceed a total of 6 applications per season. Apply when disease is evident. Continue applications at 21-day intervals until cure is apparent. Do not exceed a total of 6 applications per season.
Peppers: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		2 tsp. to 2 fl. oz. per gallon of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.
Tomatoes/Tomatillos: Late blight and root rot (Phytophthora infestans and Phytophthora spp.)		2 tsp. to 2 fl. oz. per gallon of water California: 3 tsp. per gallon of water	First application at transplant or when direct seeded crops are at 2 – 4 true leaf, then at one to two week intervals as required to control disease. In high disease situations use higher rates and shorter spray intervals.

*Use in California limited to tomatoes and tomatillos.

GRAPES

Use RELIANT® Systemic Fungicide for effective control of downy mildew diseases in grapes.

Disease	Application Method	Rate	Application Program
Downy mildew (Plasmopara viticola)	Foliar spray	1/2 fl. oz. per gallon of water	It is essential that the rate of RELIANT® Systemic Fungicide be adjusted to the vine-row volume, i.e., the volume of vine foliage per acre. Spray timing is critical. Apply RELIANT® Systemic Fungicide at times of high disease risk, especially between the time that conditions are conducive to downy mildew infection and the appearance of oil spots. Ensure spray coverage is adequate and that the appropriate rate of RELIANT® Systemic Fungicide is applied to match vine growth, particularly from mid- season onwards, and especially where grapes are grown on root stock. grown on root stock.

HOPS*

Use RELIANT® Systemic Fungicide for effective control of downy mildew

Disease	Application Method	Rate	Application Program
Downy mildew	Foliar spray by ground equipment only.	2 – 6 tsp. per gallon of water	When conditions favor disease, apply when A. Shoots are 1/2 to 1 foot long. B. Post-training when vines are 6 feet high. C. 21 days post-application (B) D. During bloom

*Not for use in California.

LEAFY VEGETABLES*

Use RELIANT® Systemic Fungicide for effective control of downy mildew in leafy vegetables such as, but not limited to, amaranth, arugula, cardoon, celery, chervil, corn salad, endive, fennel, lettuce, parsley, radicchio, rhubarb, spinach, and Swiss chard. Excludes Brassica vegetables.

Disease	Application Method	Rate	Application Program
Downy mildew (Bremia lactucae)	Foliar spray	1 2/3 fl. oz. per gallon of water	Ensure spray coverage is adequate to wet the whole plant. During warm, wet conditions repeat application at 7 to 10 day intervals, if needed.

*Use in California limited to lettuce.

LEGUMES*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in legumes (succulent and dried) such as, but not limited to, green beans, soybeans, wax beans, field beans, navy beans, lima beans, fava beans, kidney beans, pinto bean, mung beans, broad beans, lentils, chickpeas, English peas, snow peas, sugar snap peas, black-eyed peas, cow peas, and pigeon peas.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

MANGOS

Use RELIANT® Systemic Fungicide for effective control of anthracnose in mangos.

Disease	Application Method	Rate	Application Program
Anthracnose (Colletotrichum gloeosporoides)	Foliar spray	2 tsp. per gallon of water	Spray tree every 14 days during blossom period, then monthly until harvest. Spray to the point of run-off.

NONGRASS ANIMAL FEED*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in forage crops such as, but not limited to, alfalfa, clover, and vetch.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

OKRA*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot diseases in okra.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.

*Not for use in California.

ONIONS

Use RELIANT® Systemic Fungicide for effective control of downy mildew disease in onions, garlic, shallots, and leeks. Use as a preventative control program for best results.

Disease	Application Method	Rate	Application Program
Downy mildew (Peronospora destructor)	Foliar spray	4 tsp. per gallon of water	As a regular preventative control program or when disease first appears.

PEANUTS*

Use RELIANT® Systemic Fungicide for effective control of damping-off and root rot disease in peanuts.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. per gallon of water	Apply at 14-day intervals, as necessary. Ensure thorough coverage.

*Not for use in California.

PINEAPPLES

Use RELIANT® Systemic Fungicide for effective control of Phytophthora root and heart rot diseases in pineapples.

Disease	Application Method	Rate	Application Program
Phytophthora root and heart rot (Phytophthora cinnamomi and parasitica spp.)	Foliar spray	1 2/3 to 3 1/3 fl. oz. per gallon of water	Apply to tops, 14 days prior to harvest of planting material.
	Pre-plant dip	2 tsp. per gallon of water	Established plantings when conditions favor disease. Apply at 90 day intervals.
	Foliar spray	2/3 fl. oz. per gallon of water	Ensure thorough coverage of plants.

ROOT AND TUBER VEGETABLES*

Use RELIANT® Systemic Fungicide for effective control of foliar and root rot in ginseng, damping-off and root rot diseases in carrots, and late blight disease and storage diseases such as pink rot and pythium leak in potatoes, sweet potatoes, and yams.

Disease	Application Method	Rate	Application Program
Ginseng: Foliar and root rot (Phytophthora cactorum)	Foliar spray	4 1/2 tsp. per gallon of water	In cool wet conditions that favor Phytophthora. Apply at 7 day intervals. Do not exceed a total of 8 applications per season.
Carrots: Phytophthora and Pythium spp.	Foliar spray	2 tsp. to 2 fl. oz. per gallon of water	Apply at 14-day intervals after plant emergence, as needed. Assure good coverage.
Potatoes, Sweet Potatoes, Yams: Pink rot and Pythium leak (Phytophthora erythroseptica and Pythium spp.)	In-furrow spray	6 1/2 to 16 fl. oz. per gallon of water	Apply in a band spray directly over top of potato seed just before row is closed.
Potatoes, Sweet Potatoes, Yams: Late blight, Pink rot and Pythium leak (Phytophthora infestans, Phytophthora erythroseptica and Pythium spp.)	Foliar spray	2/3 to 3 tsp. per gallon of water	Apply at 5 to 14 day intervals subject to disease incidence.

*Use in California limited to potatoes, sweet potatoes, and yams.

STONE FRUIT*

Use RELIANT® Systemic Fungicide for effective control of root, collar rot and almond pruning wound canker disease in stone fruit such as, but not limited to, sweet and tart cherries, peaches, plums, and fresh prunes.

Disease	Application Method	Rate	Application Program
Root and collar rot (Phytophthora spp.)	Foliar spray	1/3 fl. oz. per gallon of water	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. High disease pressure will shorten the length of control.)
	Basal bark spray apply spring and fall for best results	16 fl. oz. + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	
Almond pruning – wound cankers (Phytophthora syringae)	Paint or spray	1/3 to 3/4 fl. oz. per gallon of water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet. In high disease situations use higher rate.

*Not for use in California.

STRAWBERRIES

Use RELIANT® Systemic Fungicide for effective control of leather rot, red stele and Phytophthora disease in strawberries.

Disease	Application Method	Rate	Application Program
Red stele (Phytophthora fragariae)	Pre-planting dip	1/3 fl. oz. per gallon of water	Dip planting material in this solution for 30 minutes, then plant within one day. Use program for annual and perennial varieties.
	Foliar spray	2 to 6 tsp. per gallon of water 2 to 3 tsp. per gallon of water (CA only)	Annual crops, first treatment 14 to 21 days post planting, repeat at 1-2 month intervals when disease is evident. Perennial crops, first treatment during spring growth flush, repeat at 1-2 month intervals when disease is evident. For susceptible varieties use higher rates and shorter spray intervals.
Leather rot (Phytophthora cactorum)	Foliar spray	2 to 6 tsp. per gallon of water 2 to 3 tsp. per gallon of water (CA only)	Apply at 10% bloom and early fruit set, then at one to two week intervals as required for disease control. In high disease situations use higher rates and shorter spray intervals.

TREE NUTS*

Use RELIANT® Systemic Fungicide for effective control of root and collar rot, and almond pruning-wound canker disease in tree nuts such as, but not limited to, almonds, beech nuts, Brazil nuts, butternuts, cashews, chestnuts, chinquapin, hazelnuts, hickory nuts, macadamia nuts, pecans, and walnuts.

Disease	Application Method	Rate	Application Program
Other than macadamia nuts: Root and collar rot (Phytophthora spp.)	Foliar	2 tsp. per gallon of water	Three treatments are required 1. Spring 2. Mid summer 3. Fall, post harvest
Other than macadamia nuts: Almond pruning – wound canker (Phytophthora syringae)	Paint or spray	4 1/2 tsp. per gallon of water	Apply to pruning wound and surrounding area, ensure area is thoroughly wet.
Macadamia nuts: Raceme blight (Phytophthora spp.)	Foliar spray	3 tsp. per gallon of water	Apply when disease is first seen and reapply at 3 week intervals. Spray to the point of run-off.

*Not for use in California.

LANDSCAPE APPLICATIONS*

Use RELIANT® Systemic Fungicide for effective control of Phytophthora and Pythium spp. and other diseases associated with Sudden Oak Death, Beech Decline, and general tree decline syndromes. Apply RELIANT® Systemic Fungicide to trees such as, but not limited to, Beech, Cedar, Chestnut, Crab Apple, Dogwood, Elm, Fir, Juniper, Linden, Pine, Oaks (Coastal, Live, Shreve, Black, Canyon), Ornamental Pear, Sweet Birch, Sweet Gum, Sycamore, White Pine, White Cedar, and Willow.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label or tree injury may occur. Do not apply to trees that are heat or moisture stressed. Do not apply to trees that are in a state of dormancy. Do not exceed indicated spray intervals or label rates in order to avoid tree injury.

Disease	Application Method	Rate	Application Program
Phytophthora and Pythium spp., and Phytophthora ramorum	Injection	11 fl. oz. per 21 fl. oz. of water OR 1/2 tsp. per tsp. of water	Drill holes 3/16 inch (5 mm) in diameter into live sapwood (depth dependent upon age of tree) with downward angle into trunk uniformly around the tree circumference, using a slow drill. Do not inject into areas of obvious decay, canker or mechanical injury that appear on the tree trunk. Calculate the amount of product required by measuring the trees by one of the following 3 methods, and use the highest calculated number of injections. 1) 1 injection per square yard of canopy; 2) 1 injection per yard of diameter of canopy measured at the drip- line; 3) 1 injection per 6 inches of trunk circumference measured 4 feet above soil level. Make injections with applicators that maintain positive pressure differential such as ChemJet®, Sidewinder®, Ag-murph Gun®, Marley® Injector, or hydraulic applicator type equipment that forces solution into the sapwood of the tree.
	Basal bark spray (all other tree species) apply spring and fall for best results or anytime active growth occurs	16 fl. oz. + 16 fl. oz. of water + 1 fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray (Pine)	16fl.oz. RELIANT® Systemic Fungicide + 32 fl. oz. of water +0.5 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Spray a combination of RELIANT® Systemic Fungicide and Pentra-Bark™ around the complete circumference of the tree trunk until saturation/runoff. Spray from ground level up to 5 feet above the soil line, including the base of the first scaffolding limbs, if present. (Treatment generally lasts 8-12 weeks depending on pathogen levels. Higher disease pressure will shorten the length of control.)
Fusarium subglutinans (Pine Pitch Canker) and Gnomonia platani (Sycamore Anthracnose)	Injection	20 ml per tree of a 16fl.oz. RELIANT® Systemic Fungicide + 32 fl.oz. of water + 0.5 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant solution.	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag-murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

(continued on next page)

LANDSCAPE APPLICATIONS* (continued)

Disease	Application Method	Rate	Application Program
Apple black spot and scab (Venturia inaequalis)	Basal bark spray apply in early spring at bud swell or silver tip stage of growth	16 fl. oz. + 16 fl. oz. of water + 1fl. oz. Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Can be used as a preventative or curative application for trees listed. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, backpack sprayers, hose-end applicators with backflow prevention devices, and other similar application devices.

*Use in California limited to Oaks (Coastal, Live, Shreve, Black, Canyon), Tan Oaks, and other tree species that are host to P. ramorum. Applications limited to injection and basal bark spray of pines, basal bark spray of apples and crabapples, and injection of Sycamores for control of Sycamore anthracnose. Do not apply to any other tree species without consulting the list of P. ramorum host species listed at the following website: http://nature.berkeley.edu/comtf/index.html. For questions contact your local extension office.

ORNAMENTAL APPLICATIONS

Use RELIANT® Systemic Fungicide for effective control of Bacterial blight, Downy mildew, Phytophthora spp. (root rot) and Pythium spp. (Damping-Off) diseases, and Sudden Oak Death of Ornamentals in landscapes and interiorscapes. Apply RELIANT® Systemic Fungicide to plants such as, but not limited to, Aglaonema, Aphelandra, Arborvitae, Azaleas, Bougainvillea, Boxwood, Cattelya skinneri, Ceanothus, Cotoneaster, Cissus, Diffenbachia, English ivy, Eucalyptus, Ficus, Hibiscus, Japanese andromeda, Japanese Holly, Leather leaf Fern, Peperomia, Photinia, Pittosporum, Philodendron, Pieris, Pothos, Rhododendron, Roses (container, landscape, mini varieties), Schefflera, Sedum, Sempervivum, Syngonium, Spathiphyllum, Taxus media, and Zygocactus.

Make applications before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. Do not apply to plants that are in a state of dormancy. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Bacterial blight (Xanthomonas campestris) pothovars: dieffenbachiae, fici hederae and syngonii	Foliar spray	2 – 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 7 to 14 days Repeat as required.
Downy mildew	Foliar spray	2 1/2 – 5 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp., (root rot) Phytophthora ramorum, and Pythium spp. (Damping-Off)	Foliar spray	2 – 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	1/8 tsp. per gallon of water	Apply each 25 gallons of solution to an area of 100 sq feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
	Soil incorporation	1 – 2 pints per cubic yard of soil	Just prior to potting mix 1 to 2 pts of RELIANT® Systemic Fungicide into each cubic yard of growing media. If disease pressure is high, make application by foliar spray or soil drench.
	Bare rooted dipping of transplants	2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes, keep roots submerged, ensure root mass is thoroughly wet.

BEDDING PLANTS

Use RELIANT® Systemic Fungicide for effective control of Downy mildew, Phytophthora spp.(Root Rot) and Pythium spp. (Damping–Off) diseases of BEDDING PLANTS outdoors and in interiorscapes. Apply RELIANT® Systemic Fungicide to plants such as, but not limited to, Ageratum, Algerian Ivy, Anthurium, Artemesia, Aster, Begonia, Baby's Breath, Caladium, Carnation, Chrysanthemum, Columbine, Coleus, Daisy, Delphinium, Easter Lily, English Ivy, Foxglove, Gaillardia, Geranium, Gloxinia, Impatiens, Lavender, Marigold, Petunia, Pansy, Phlox, Pinks, Poinsettia, Primrose, Prostrate Rosemary, Salvia, Snapdragon, Vinca, Verbena, and Zinnia.

Make applications to outdoor or indoor plants before disease development and in conjunction with good cultural management practices. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to plants that are heat or moisture stressed. When applying to indoor plants do not overspray and use care to apply only to target plants. If meeting these conditions is not possible, remove plants to an outdoor location for treatment and drying before bringing back indoors.

Disease	Application Method	Rate	Application Program
Downy Mildew	Foliar Spray	1/2 to 1 1/8 fl. oz. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
Phytophthora spp. (root rot) and Pythium spp. (Damping Off)	Foliar Spray	2 to 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required. Note: Do not apply more than 500 gallons of spray solution per acre.
	Soil drench	1/8 tsp. per gallon of water	Apply each gallon of solution to an area of 4 square feet. Follow application with irrigation. Repeat as required. Limit of one application per month.
Phytophthora spp.* (root rot)	Foliar spray	tsp. per acre	Apply spray in 20-60 gallons per acre.
Phytophthora spp.* (root rot)	Hand gun	2 quarts per 100 gallons of water	Apply spray to thoroughly wet all foliage.

* Lavender applications.

CONIFERS*

Apply RELIANT® Systemic Fungicide in conjunction with good cultural management practices for effective control of root rot (Phytophthora spp.) in CONIFERS including, but not limited to, Pines, Spruce and Douglas Fir. Use higher rate of application when disease pressure is severe. Do not exceed indicated application rates or apply more frequently than stated on label in order to avoid plant injury. Do not apply to CONIFERS that are moisture or heat stressed.

Disease	Application Method	Rate	Application Program
Phytophthora spp.	Foliar spray	2 to 4 tsp. per gallon of water	Apply spray to thoroughly wet all foliage. Application intervals: 14 to 21 days. Repeat as required.
	Soil drench	2 to 4 tsp. per gallon of water	Apply one gallon of solution per sq yd. Follow application with irrigation. Application intervals: 14 to 21 days. Repeat as required.
	Bare root dipping at transplanting	2 tsp. per gallon of water	Immediately before transplanting, dip transplants for two minutes; keep roots submerged and ensure root mass is thoroughly wet.
Fusarium subglutinans (Pine Pitch Canker)	Basal bark spray apply any time active growth occurs	16 fl. oz. RELIANT® Systemic Fungicide + 32 fl.oz. of water + 0.5 fl. oz. of Pentra-Bark™ Bark Penetrating Surfactant	Apply uniformly to 6-9 feet of trunk circumference. Spray from top down to ground level from either first branch or from as high as possible without exposing applicator to drift. Spray to saturation/runoff. Various types of application equipment can be used such as hydraulic sprayers, handheld pump-type sprayers, and backpack sprayers.
Fusarium subglutinans (Pine Pitch Canker)	Injection	20 ml per tree of a 16 fl. oz. RELIANT® Systemic Fungicide + 32 fl.oz. of water + 0.5 fl. oz. of Pentra-Bark™ Bark – Penetrating Surfactant solution.	Drill holes 3/16 inch (5 mm) in diameter and 1 inch (25 mm) to 2 inches (50 mm) deep with slight downward angle in trunk. Place syringes in the main trunk of the tree and space evenly around the circumference of the trunk. Suitable for use with Chemjet tree injectors, Ag- murf gun, or hydraulic tree injection. Trees should be at least 10" diameter at breast height.

*Use in California limited to injection and/or basal bark spray of pines.

TURF

Use RELIANT® Systemic Fungicide for the effective control of Pythium and damping-off diseases of turf grasses. When conditions favor disease, begin preventive applications and repeat at indicated intervals. Use higher rate of application when disease pressure is severe.

Disease	Application Method	Rate	Application Program
Pythium	Foliar spray	5 to 10 fl. oz. per 1000 sq. ft.	Apply indicated quantity of product in 1 to 5 gal. of water per 1000 sq. ft. Ensure foliage is thoroughly wet. Application intervals: 14 – 21 days. Repeat as required. Do not irrigate or mow treated areas until spray has completely dried.

Do not graze animals on treated areas of turf. Do not feed treated turf clippings to poultry or livestock.

STORAGE and DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE:

Keep this product in containers stored upright and secured with the original closure. Do not store this product near any heat source. Do not store near strong oxidants. If transfer to another container becomes necessary, ensure that the container is clearly labeled, the container is a type suitable for the product, and is clean and free of other materials.

CONTAINER HANDLING:

Non Refillable container. Do not reuse or refill this container. Offer for recycling if available. If partly filled: Call your local solid waste agency or 1-800-CLEANUP (1-800-253-2687) for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY AND DISCLAIMER

To the extent permitted by applicable law, all conditions and warranties and statutory or other rights of action which buyer or any other user may have against Quest Products Corp. are hereby excluded. To the extent permitted by applicable law, Quest Products Corp. hereby gives notice to buyer and other users that it will not accept responsibility for any indirect or consequential loss arising from reliance on product information provided by Quest Products Corp. or on its behalf unless it is established that such information or advice was provided negligently and that the product has been used strictly as directed. To the extent permitted by applicable law, Quest Products Corp.'s liability shall in all circumstances be limited to replacement of product or a refund of the purchase price thereof.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Robert Rosenwasser
Agent for Quest Product, LLC
11712 230th Street
Linwood, Kansas 66052

MAR 31 2014

Subject: PRIA Formulation Amendment Application to Add an Unregistered Source of Active Ingredient to RELIANT SYSTEM FUNGICIDE
EPA File Symbol: 83416-1
Your submission dated September 16, 2013
Decision No.: 483282
PRIA Category: B681

Dear Mr. Rosenwasser:

The amendment referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, has been received and reviewed, and the amendment is acceptable provided that you submit and/or cite all data required for registration/reregistration of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Should you have any questions, you may contact Gina Burnett directly at (703) 605-0513 or via email at burnett.gina@epa.gov.

Sincerely,

Linda A. Hollis, Chief
Biochemical Pesticides Branch
Biopesticides and Pollution
Prevention Division (7511P)

CONCURRENCES								
SYMBOL ►	7511P	7511P						
SURNAME ►	Burnett							
DATE ►	3/31/2014	3/31/14						

EPA Form 1320-1A (7/90) OFFICIAL FILE COPY

ROUTING AND TRANSMITTAL SLIP Date: 3/31/2014

TO: *(Name, office symbol, room number, building, Agency)*		
Sheryl Reilly, Associate Chief, BPB/BPPD/OPP	SLR	3/31/14
Linda Hollis, Chief, BPB/BPPD/OPP		
Gina Burnett, RAL/Biologist, BPB/BPPD/OPP		

	Action		File		Note and Return
X	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate	X	Signature
	Coordination		Justify		

REMARKS

Acceptable PRIA Formulation Amendment (B681) to Add Unregistered Source of Active Ingredient

EPA Reg No.: 83416-1
PRIA due date: May 19, 2014 (expedite per L. Hollis)

Acceptable review memo from C. Fuentes is enclosed.

Thanks,
Gina

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions.

FROM: *(Name, org. symbol, Agency/Post)*	Room No.– Bldg.
	S-8946
	Phone No.
Gina Burnett, OPP/BPPD/BPB	703-605-0513

ROUTING AND TRANSMITTAL SLIP	Date: 3/31/2014	
TO: *(Name, office symbol, room number, building, Agency)*		
Sheryl Reilly, Associate Chief, BPB/BPPD/OPP	SLR	3/31/14
Linda Hollis, Chief, BPB/BPPD/OPP		
Gina Burnett, RAL/Biologist, BPB/BPPD/OPP		

	Action		File		Note and Return
X	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate	X	Signature
	Coordination		Justify		

REMARKS

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Thanks,
Gina

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions.

FROM: *(Name, org. symbol, Agency/Post)*	Room No.– Bldg.
	S-8946
	Phone No.
Gina Burnett, OPP/BPPD/BPB	703-605-0513

BPPD Formulation Amendment Check List

Fast Track ☐ and PRIA Actions B680 ☐, B681 ☒,B730☐

EPA Reg. No.: 8-34161 **RAL:** G. Burnett **Application Date:** 9/16/2013

#	Check list Item
1.	**Application Form** (EPA Form 8570-1) - signed & complete including package type? **IF NO, STOP**! Call applicant and have them correct application and resubmit.
2.	**Final printed labeling** received for previous action? **IF NO, STOP!** E-mail applicant and request final printed labeling.
3.	Does the registration notice have terms/conditions (ex: storage stability data)? X If so have the terms/conditions been met? N/A
4.	**Confidential Statement of Formula** (CSF) EPA Form 8570-4 Basic Formula ☒ Alternate Formula(s) ☐ ___
a.	CSF Review completed? **IF YES, SKIP to next item.**
b.	CSF is signed and dated? **IF NO, CALL APPLICANT.**
c.	Completely filled out: CAS numbers, pH, flashpoint, flammability, if applicable?
d.	Are the totals accurate?
e.	Certified limits agree with 40 CFR 158.175? Note that if preliminary or 5 batch analysis differ from Section 158.175(b), limits based on batch analysis would need to be proposed under Section 158.175(c).
f.	Viability (if live microbial, i.e., cfu/gram)? NA ☐
g.	PC codes assigned on CSF for actives & inerts plus 40 CFR 180.910, 180.920, and 180.930 codes noted for products that have food or feed uses?
h.	List 1 inert ingredient(s) present in the formulation?
i.	Alternate formula(s) do not require different labeling from basic CSF or other alternate CSFs. NA ☐
j.	Source for a.i. is a registered pesticide? (When a proposed alternate or new basic formula involves a new registered manufacturing-use product as the active ingredient source it must be determined whether the manufacturing-use products used to formulate are similar enough to warrant use of existing product specific data such as acute toxicity.)
k.	Does CSF list peanuts, tree nuts, milk, soybeans, eggs (including putrescent eggs), fish, crustacea, or wheat commodities? **If YES**, RAL must evaluate label directions for compliance with 40 CFR 180.1071.
5.	**Data and Data Matrix** present. (EPA Form 8570-35)
a.	a) Using Selective Method? [[**IF NO, SKIP to item 5 and note that data matrix should be used for the cite-all method to indicate the companies to whom offers of compensation were made.**]]
b.	Complete Data Matrix. Minimum Data Matrix for registration includes: product specific acute toxicity, product chemistry, and efficacy data for public health pests claimed on label.
c.	Adequate product specific data submitted?

d.	Registered source used for active ingredient? **IF YES, SKIP to ITEM 5.** (Active ingredient is from a registered source and generic data should be satisfied by registered source. **IF NO**, generic data needed.	X
e.	Data passed PR Notice 86-5 for formatting and MRID number assignment?	✓
f.	Public copy of Data Matrix provided? (PRN 98-5)	✓
6.	**Certification with Respect to Citation of Data** (EPA Form 8570-34): See 40 CFR 152.80-98 and PR Notice 98-5 [Note: If no data are required or submitted, a Certification with Respect to Citation of Data form is not needed. This is often true for minor amendments.]	✓
a.	Did applicant check a Method of Support?	✓
b.	General Offer to Pay checked for Cite-all Method or Cite-all under Selective Method?	N/A
c.	Is the form signed and dated?	N/A
d.	Check form and Data Matrix; are Exclusive Use data cited from other sources?	N/A
	IF YES, is the required authorization letter included in application? NA ☐	N/A
7.	**Formulators Exemption** (EPA Form 5870-27)	
a.	If registrant is using a registered source active ingredient in the formulation, is form filled out completely and signed? NA ☒	N/A
8.	**Science Review** completed? Comments: None	

Mono- and di- potassium salts of phosphorous acid
PC Codes: 076416

DP Number(s): 418750
EPA Reg. or File Symbol No: 83416-1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND POLUTION PREVENTION/OFFICE OF PESTICIDE PROGRAMS

MEMORANDUM

DATE: **March 27, 2014**

SUBJECT: Science Review of registrant's response to deficiencies in support of registration amendment for registered product, Reliant Systemic Fungicide, containing 45.8 % w/w Mono-and di- potassium salts of phosphorous acid as active ingredient.

Decision Number:	483282
DP Number:	418750
EPA File Symbol Number:	83416-1
Chemical Class:	Biochemical
PC Code:	076416
CAS Number:	13492-26-7 / 13977-65-6
Active Ingredients:	Mono- and di- potassium salts of phosphorous acid
Tolerance Exemptions:	40 CFR 180.1200
MRID Numbers:	492168-01 and 492168-02

FROM: Clara Fuentes, Ph.D. //
Entomologist
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

TO: Gina Burnett, Regulatory Action Leader
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

ACTION REQUESTED

Quest Products LLC., is responding to deficiencies noted in an Agency e-mail to the registrant, dated March 18, 2014. This resubmission includes copy of product label, copies of revised Post- and Pre-reactions of Basic formulations, and MSDS from Quest Products LLC. for the product, Reliant Systemic Fungicide (EPA Reg. No. 83416-1). In addition, the registrant states that Storage Stability and Corrosion Characteristic study is ongoing and that data will be submitted upon completion of the ongoing studies.

RECOMMENDATIONS AND CONCLUSIONS

1. Product chemistry: Acceptable.

The registrant has submitted MSDSs that were pending for the active and inert ingredients. The MSDSs from Quest Products LLC for the active ingredient, Mono-and di-potassium salts of phosphorus acid listed on the CSF and present in the product, Reliant Systemic Fungicide (EPA Reg. No. 83416-1), and the one submitted from [redacted] supplier of inert ingredient listed on the revised CSF for Post-reaction Basic formulation, dated 3-19-2014, satisfy this pending reuirement.

2. Mammalian Toxicity: Acceptable.

The registrant has cited studies in MRIDs 448735-01 to 448735-06 in fulfillment of acute mammalian toxicity data requirement. The product is classified in toxicity category III for dermal toxicity and eye irritation. The registrant has provided rationale together with cited studies in MRIDs 467082-19; 477608-31; 481934-03; 484985-13; 466458-02; 477608-32; 466458-03; 477608-33; 477608-34, and 477608-37 to satisfy each individual Subchronic mammalian toxicity data requirement.

3. Non-Target Organisms: Acceptable.

The registrant has adequately satisfied the required non-target organisms' studies, oral and dietary avian toxicity, toxicity of fresh water invertebrate and fresh water fish, non-target plants. and non-target insects with cited data in MRIDs 448735-08 to 448735-11; 481376-01 and 477608-27.

BACKGROUND INFORMATION

Reliant Systemic Fungicide (EPA Reg. No. 83416-1) is a Systemic fungicide for the control of various plant diseases affecting fruits and vegetables. The current registration is a 100 % repack of Mono- and di- potassium salts of phosphorous acid ([redacted]). The registrant is requesting a change in registration to add an unregistered source of active ingredient. In addition, the registrant is proposing to expand applications range for agricultural and residential uses to include control of various plant pathogens affecting fruits and vegetable plants, herbs and spices, and in hydroponic plant production.

STUDY SUMMARY

Product Chemistry:

TABLE I. Physical and Chemical Properties for Reliant Systemic Fungicide		
Guideline Reference No./Property	**Description of Result**	**Methods**
830.6302 Color	Clear blue	Visual inspection
830.6303 Physical State	Liquid	Visual inspection
830.6304 Odor	Odorless	Qualitative determination
830.6313 Stability	N/A	
830.6315 Flammability	N/A	
830.6316 Explodability	N/A	
830.6317 Storage Stability	Data to be submitted upon completion of study	Study is ongoing
830.6319 Miscibility	N/A	
830.6320 Corrosion Characteristics	Data will be submitted at completion of study	Study is ongoing
830.7000 pH	5.72 at 22 °C	pH meter
830.7050 UV/Visible Absorption	N/A	
830.7100 Viscosity	3.17 nm^2 at 24 °C 2.52 nm^2 at 43 °C	Gravitational flow thru capillary viscometer
830.7200 Melting Range	N/A	
830.7220 Boiling Range	107.2 °C	Calculated $\Delta T_b = K_b m i$
830.7300 Density/Relative Density/Bulk Density	1.37 g/ml	Calculated: D = mass (g) / vol. (ml) Pycnometer
830.7520 Particle size, fiber length, diameter distribution	N/A	
830.7550 Partition coefficient (n-Octanol/water)	N/A	
830.7840 Water Solubility	N/A	
830.7950 Vapor Pressure	N/A	

Data from MRID 492168-02.

Toxicity

Study Type/OPPTS Guideline	LD_{50}/LC_{50}/Results	Toxicity Category	MRID
Acute Oral Toxicity/OPPTS 870.1100	> 5,000 mg/kg	IV	448735-01
Acute Dermal Toxicity/OPPTS 870.1200	> 2,000 mg/kg	III	448735-02
Acute Inhalation Toxicity/OPPTS 870.1300	> 4.4 mg/L	IV	448735-05
Acute Eye Irritation/OPPTS 870.2400	Ocular irritation cleared within 72 hrs.	III	448735-04
Acute Dermal Irritation/OPPTS 870.2500	Not a dermal irritant	IV	448735-03
Skin Sensitization/OPPTS 870.2600	Not a sensitizer	IV	448735-06

Test substance was 53 % Mono and Di-potassium phosphite.

The Required sub-chronic mammalian toxicity data are cited from the following MRIDs: 467082-19; 477608-31; 481934-03; 484985-13; 466458-02; 477608-32; 466458-03; 477608-33; 477608-34, and 477608-37. The registrant offers the following rationale to address each data requirement individually:

90-days Oral toxicity (OCSPP 870.3100):

An exemption from the requirement of a tolerance is established in 40 CFR 180.1200 for residues of phosphorous acid and its ammonium, sodium and potassium salts in or on all food commodities when used as an agricultural fungicide on food crops.

90-days dermal (OCSPP 870.3250): No purposeful application to the human skin which would result in prolonged dermal exposure to the product is expected.

90-days Inhalation (OCSPP 870. 3465): There is little likelihood of significant levels of repeated inhalation exposure to the product as gas, vapor or aerosol spray.

Prenatal Development (OCSPP 870.3700): Under common practice and product use pattern, significant product exposure to human females is unlikely.

Mutagenicity (OCSPP 870.7200): Neither the active ingredient nor its metabolites are related to a known mutagen nor they belong to any chemical class containing a known mutagen.

Non-Target Organisms:

Study Type/OPPTS Guideline	LD_{50}/LC_{50}/Results	Toxicity Category	MRID
Avian Acute Oral/OPPTS 850.2100	> 2,000 mg/kg	Slightly toxic	448735-08
Avian Dietary/OPPTS 850.2200	> 5,000 ppm	IV	448735-09
Freshwater Invertebrate/OPPTS 850.1010	> 1,200 mg/L	Practically non-toxic	448735-11
Freshwater Fish LC50/OPPTS 850.1075	> 790 mg/L	IV	448735-10
Non-target Plants/OPPTS 850.4100	No phytotoxic		481376-01
Non-target Insects 850.3020	No toxic to bees		477608-27

Test substance was 53 % Mono- and di-potassium phosphite, 12.2 % phosphorus, 28 % phosphorous.

cc: *Clara Fuentes*, *RAL Gina Burnett*, BPPD Chron File, IHAD/ARS FT, PY-S: 03/25/2014.

CONFIDENTIAL APPENDIX

Pages 135-136 Confidential Statement of Formula may be entitled to confidential treatment

Confidential Statement of Formula may be entitled to confidential treatment

Manufacturing process information may be entitled to confidential treatment

Manufacturing Process, Formation of Impurities, Preliminary Analysis, Certified Limits and Enforcement Analytical Method.

cc: *Clara Fuentes*, *RAL Gina Burnett*, BPPD Chron File, IHAD/ARS FT, PY-S: 03/27/2014.

Mono- and di- potassium salts of phosphorous acid
PC Codes: 076416

DP Number(s): 418750
EPA Reg. or File Symbol No: 83416-1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND POLUTION PREVENTION/OFFICE OF PESTICIDE PROGRAMS

MEMORANDUM

DATE: **March 25, 2014**

SUBJECT: Science Review of registrant's response to deficiencies in support of registration amendment for registered product, Reliant Systemic Fungicide, containing 45.8 % w/w Mono-and di- potassium salts of phosphorous acid as active ingredient.

Decision Number:	483282
DP Number:	418750
EPA File Symbol Number:	83416-1
Chemical Class:	Biochemical
PC Code:	076416
CAS Number:	13492-26-7 / 13977-65-6
Active Ingredients:	Mono- and di- potassium salts of phosphorous acid
Tolerance Exemptions:	40 CFR 180.1200
MRID Numbers:	492168-01 and 492168-02

FROM: Clara Fuentes, Ph.D. //
Entomologist
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

TO: Gina Burnett, Regulatory Action Leader
Biochemical Pesticides Branch
Biopesticides & Pollution Prevention Division (7511P)

ACTION REQUESTED

Quest Products LLC., is responding to deficiencies noted in an Agency e-mail to the registrant, dated March 18, 2014. This resubmission includes copy of product label, copies of revised Post- and Pre-reactions of Basic formulations, and MSDS from Quest Products LLC. for the product, Reliant Systemic Fungicide (EPA Reg. No. 83416-1). In addition, the registrant states that Storage Stability and Corrosion Characteristic study is ongoing and that data will be submitted upon completion of the ongoing studies.

RECOMMENDATIONS AND CONCLUSIONS

1. Product chemistry: Unacceptable.

1a. Deficiency: **The submitted MSDS from Quest Products LLC. is not for the active ingredient, Mono- and di-potassium salts of phosphorus acid (CAS No. 13492-26-7) and (CAS No. 13977-65-6) in the proposed product but for the proposed product, Reliant Systemic Fungicide (EPA Reg. No. 83416-1).**

1b. Deficiency: **The MSDS that needs to be submitted is for the active ingredient, Mono-and di-potassium salts of phosphorus acid listed on the CSF** and present in the product **rather than for the whole formulation of Reliant Systemic Fungicide (EPA Reg. No. 83416-1).**

1c. Deficiency: The registrant **needs to submit MSDSs from the supplier, [redacted] of inert ingredient** listed on the revised CSF for Post-reaction Basic formulation, dated 3-19-2014.

2. Mammalian Toxicity: Acceptable.

The registrant has cited studies in MRIDs 448735-01 to 448735-06 in fulfillment of acute mammalian toxicity data requirement. The product is classified in toxicity category III for dermal toxicity and eye irritation. The registrant has provided rationale together with cited studies in MRIDs 467082-19; 477608-31; 481934-03; 484985-13; 466458-02; 477608-32; 466458-03; 477608-33; 477608-34, and 477608-37 to satisfy each individual Subchronic mammalian toxicity data requirement.

3. Non-Target Organisms: Acceptable.

The registrant has adequately satisfied the required non-target organisms' studies, oral and dietary avian toxicity, toxicity of fresh water invertebrate and fresh water fish, non-target plants.

and non-target insects with cited data in MRIDs 448735-08 to 448735-11; 481376-01 and 477608-27.

BACKGROUND INFORMATION

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830.6317	Storage Stability	Data to be submitted upon completion of study	Study is ongoing
830.6319	Miscibility	N/A	
830.6320	Corrosion Characteristics	Data will be submitted at completion of study	Study is ongoing
830.7000	pH	5.72 at 22 °C	pH meter
830.7050	UV/Visible Absorption	N/A	
830.7100	Viscosity	3.17 nm^2 at 24 °C 2.52 nm^2 at 43 °C	Gravitational flow thru capillary viscometer
830.7200	Melting Range	N/A	
830.7220	Boiling Range	107.2 °C	Calculated $\Delta T_b = K_b m i$
830.7300	Density/Relative Density/Bulk Density	1.37 g/ml	Calculated: D = mass (g) / vol. (ml) Pycnometer
830.7520	Particle size, fiber length, diameter distribution	N/A	
830.7550	Partition coefficient (n-Octanol/water)	N/A	
830.7840	Water Solubility	N/A	
830.7950	Vapor Pressure	N/A	

Data from MRID 492168-02.

Toxicity

Study Type/OPPTS Guideline	LD_{50}/LC_{50}/Results	Toxicity Category	MRID
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Test substance was 53 % Mono and Di-potassium phosphite.

The Required sub-chronic mammalian toxicity data are cited from the following MRIDs: 467082-19; 477608-31; 481934-03; 484985-13; 466458-02; 477608-32; 466458-03; 477608-33; 477608-34, and 477608-37. The registrant offers the following rationale to address each data requirement individually:

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90-days Inhalation (OCSPP 870. 3465): There is little likelihood of significant levels of repeated inhalation exposure to the product as gas, vapor or aerosol spray.

Prenatal Development (OCSPP 870.3700): Under common practice and product use pattern, significant product exposure to human females is unlikely.

Mutagenicity (OCSPP 870.7200): Neither the active ingredient nor its metabolites are related to a known mutagen nor they belong to any chemical class containing a known mutagen.

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Non-target Insects 850.3020	No toxic to bees		477608-27

Test substance was 53 % Mono- and di-potassium phosphite, 12.2 % phosphorus, 28 % phosphorous.

cc: *Clara Fuentes*, *RAL Gina Burnett*, BPPD Chron File, IHAD/ARS FT, PY-S: 03/25/2014.

CONFIDENTIAL APPENDIX

Pages 144-145 Confidential Statement of Formula may be entitled to confidential treatment

Confidential Statement of Formula may be entitled to confidential treatment

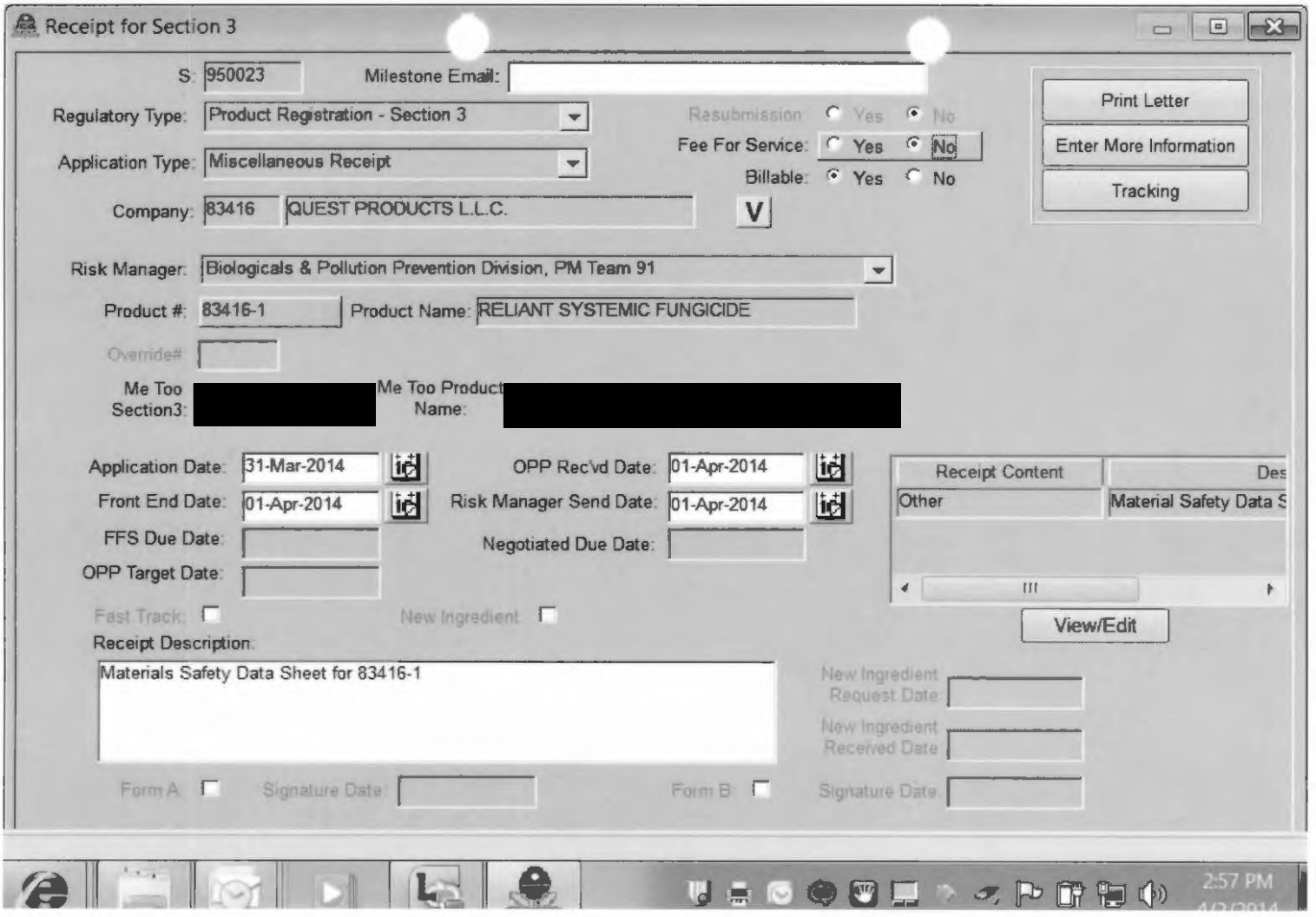
Manufacturing process information may be entitled to confidential treatment

[redacted]

Manufacturing Process, Formation of Impurities, Preliminary Analysis, Certified Limits and Enforcement Analytical Method.

[redacted]

cc: *Clara Fuentes*, *RAL Gina Burnett*, BPPD Chron File, IHAD/ARS FT, PY-S: 03/25/2014.



Product ingredient source information may be entitled to confidential treatment

Quest
Products Corp.
11712 230th St.
Linwood, KS 66052

March 31, 2014

Gina Burnett
Biochemical Pesticides Branch
Biopesticides and Pollution Prevention Division (7511P)
US Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

RE: RELIANT SYSTEMIC FUNGICIDE, EPA Reg. No. 83416-1
Submission of requested documents

Quest Products LLC., 11712 230th Street, Linwood, KS 66052, is submitting the following information as requested in your email of March 26, 2014. (A courtesy copy was emailed and received by you on March 26, 2014):

- Material Safety Data Sheet for Mono- and di-potassium salts of phosphorus acid that identifies Quest Product, LLC as the manufacturer;
- Material Safety Data Sheet for the [redacted] used as a Post Reaction material and;
- Attachment of 2 pages from the Group A Product Chemistry which demonstrates that there is production of the technical material, produced in-situ from raw materials, for direct consumption into the final registered EUP. This is defined in 40 CFR 158.300 as an *"Integrated system"*, means a process for producing a pesticide product that: (1) Contains any active ingredient derived from a source that is not an EPA-registered product"; The submitted Pre-Reaction CSF and Post- Reaction CSF is a proper reporting of an integrated system.

If you have any questions or need any additional information, please to contact me at (215) 715-6419 or mailto.rrosenwasser@verizon.net.

Sincerely,

Robert Rosenwasser
Agent for Quest Products, LLC

Inert ingredient information may be entitled to confidential treatment

SAFETY DATA SHEET

Date: 03-26-2014

1. IDENTIFICATION

Product identity: Mixture of mono-potassium phosphite and di-potassium phosphite

Manufactured by

QUEST Products LLC.
11712 230th St
Linwood, KS 66052 Phone -785-542-2577 Fax 785-542-2531

Emergency phone numbers

NPC (National Poison Control Hotline): 800-222-1222
NPIC (National Pesticide Information Center): 800-858-7378
EPA National Response Center: 800-424-8802

2. HAZARD(S) IDENTIFICATION

The components of this product, mono-potassium phosphite (CAS No. 13977-65-6) and di-potassium phosphite (CAS No. 13492-26-7) are not classified as hazardous under The Hazard Communication Standard (29 CFR 1910.1200).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture of mono-potassium phosphite (CAS No. 13977-65-6) and di-potassium phosphite (CAS No. 13492-26-7) @ 45.8%

4. FIRST AID

IF SWALLOWED:

- Call a poison control center or doctor immediately for treatment advice
- Have person sip a glass of water if able to swallow
- Do not induce vomiting unless told to do so by a poison control center or doctor
- Do not give anything by mouth to an unconscious person

IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye
- Call poison control center or doctor for treatment advice

IF ON SKIN OR CLOTHING:

- Take off contaminated clothing
- Rinse skin immediately with plenty of water for 15-20 minutes
- Call a poison control center or doctor for treatment advice

IF INHALED:

- Move person to fresh air
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible
- Call a poison control center or doctor for further treatment advice

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

5. FIRE FIGHTING MEASURES

Flash Point:	Not applicable.
Test method:	Not available.
LEL flammable limits:	Not available.
UEL flammable limits:	Not available.
Autoignition temperature:	Not available.
Flammability classification:	Not applicable.
Known hazardous products of combustion:	None Properties
that initiate/contribute to intensity of fire:	None
Potential for dust explosion:	None
Reactions that release flammable gases or vapors:	Not known.
Potential for release of flammable vapors:	Not known.

Unusual fire and explosion hazards: This is not a flammable material. Some gases such as phosphorus oxides may be released.

Extinguishing media: Carbon dioxide, dry chemical, foam, water spray. Special firefighting procedures: Use full-faced self-contained breathing apparatus along with full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Containment:	Prevent product from spilling and entering drinking water supplies or streams.
Clean up:	Collect liquid or absorb onto absorbent material and package for disposal.
Evacuation:	Not necessary.

7. HANDLING AND STORAGE

Storage:	Store in a well sealed container in a cool, well- ventilated, dry place at temperatures above 40°F. Do not store near combustible materials, herbicides, fungicides, and food or feeds. Do not stack pallets more than two (2) high.
Transfer equipment:	Transfer product using chemical-resistant plastic or stainless steel tanks, pumps, valves, etc.
Work/hygienic practices:	Keep out of reach of children. May be harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing vapors or spray mist. Causes moderate eye irritation. Avoid contact with eyes, skin of clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse. Do not allow children or pets to contact treated area until spray dries.

8. EXPOSURE CONTROLS/PERSONAL PROTECTIVE EQUIPMENT

Eye:	Chemical dust/splash goggles or full-face shield to prevent eye contact. As a general rule, do not wear contact lenses when handling.
Skin:	Long-sleeved shirt, long pants, shoes, socks and household latex or rubber gloves.
Respiratory:	Not normally needed. If use generates an aerosol mist or respiratory irritation, use NIOSH approved dust/mist respirator (such as 3M #8710).
Ventilation:	Use in well ventilated area but no TLV established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Blue liquid.
Odor:	Slight to none.
pH:	5.72 @ 20°C
Vapor pressure:	Not available.
Vapor density:	Not available.
Boiling point:	105°F
Freezing point:	Not available.
Water solubility:	Miscible.
Density:	1.37g/mL

Evaporation rate:	Not available.
Viscosity:	2.273 (cSt) @ 20°C.
% Volatile:	Not available.
Octanol/water partition coefficient:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable.
Conditions to avoid:	Avoid strong oxidizers and bases. Corrosive to most metals.
Incompatibility:	Not compatible with strong oxidizers, bases and most metals.
Hazardous decomposition products:	Gases of phosphorus oxides

11. TOXICOLOGICAL INFORMATION

Acute effects:

Ingestion:	Ingestion may cause diarrhea, nausea, vomiting, and cramps.
Eyes:	Mild irritant to eyes. Skin: Mildly irritating to skin.
Inhalation:	May be slightly irritating.
Subchronic effects:	None known.
Chronic effects:	Not established.

12. ECOLOGICAL INFORMATION

Algal/Lemna growth inhibition:	Not known.
Toxicity to fish (rainbow trout):	> 100mg/L.
Toxicity to plants:	Not known.
Toxicity to birds:	Not known.

13. DISPOSAL CONSIDERATIONS

Do not contaminate lakes, streams, ponds, estuaries, oceans, or other waters by discharge of waste effluents or equipment washwaters.
If container is empty: do not reuse this container. Place in trash or offer for recycling.
If container is partially filled: call your local solid waste agency or 1-800- CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

14. TRANSPORT INFORMATION

DOT (domestic surface)
Hazard class or division: Non-regulated

Other shipping description: Fertilizers, liquid.

15. REGULATORY INFORMATION

CERCLA: None. Proposition 65: None

SARA Information: SARA TITLE III;SEC.311/312 HAZARD CATEGORIES

Immediate (Acute) Health: Yes **Sudden Release of Pressure:** No

Delayed (Chronic) Health: No **Reactivity:** No **Fire:** No

SARA TITLE III-SEC. 313 SUPPLIER NOTIFICATION: None

NFPA: **HEALTH:** 1 **REACTIVITY:** 0 **FLAMMABILITY:** 0 **ENVIRONMENT:** 0

(0=Insignificant 1= Slight 2=Moderate 3=High 4=Extreme)

16. OTHER INFORMATION

All information appearing in this document was based on data provided by third party sources and was compiled to comply with the Federal Hazard Communication Standard and the California Hazardous Substances Information and Training Act. The information is believed to be accurate as of the preparation date, but is not warranted as being the final authority in the use of this product. This information does not purport to be legal or medical advice.

Page 154-159 Product ingredient source information may be entitled to confidential treatment

Pages 160-161 Manufacturing process information may be entitled to confidential treatment

Pages 162-164 Confidential Statement of Formula may be entitled to confidential treatment